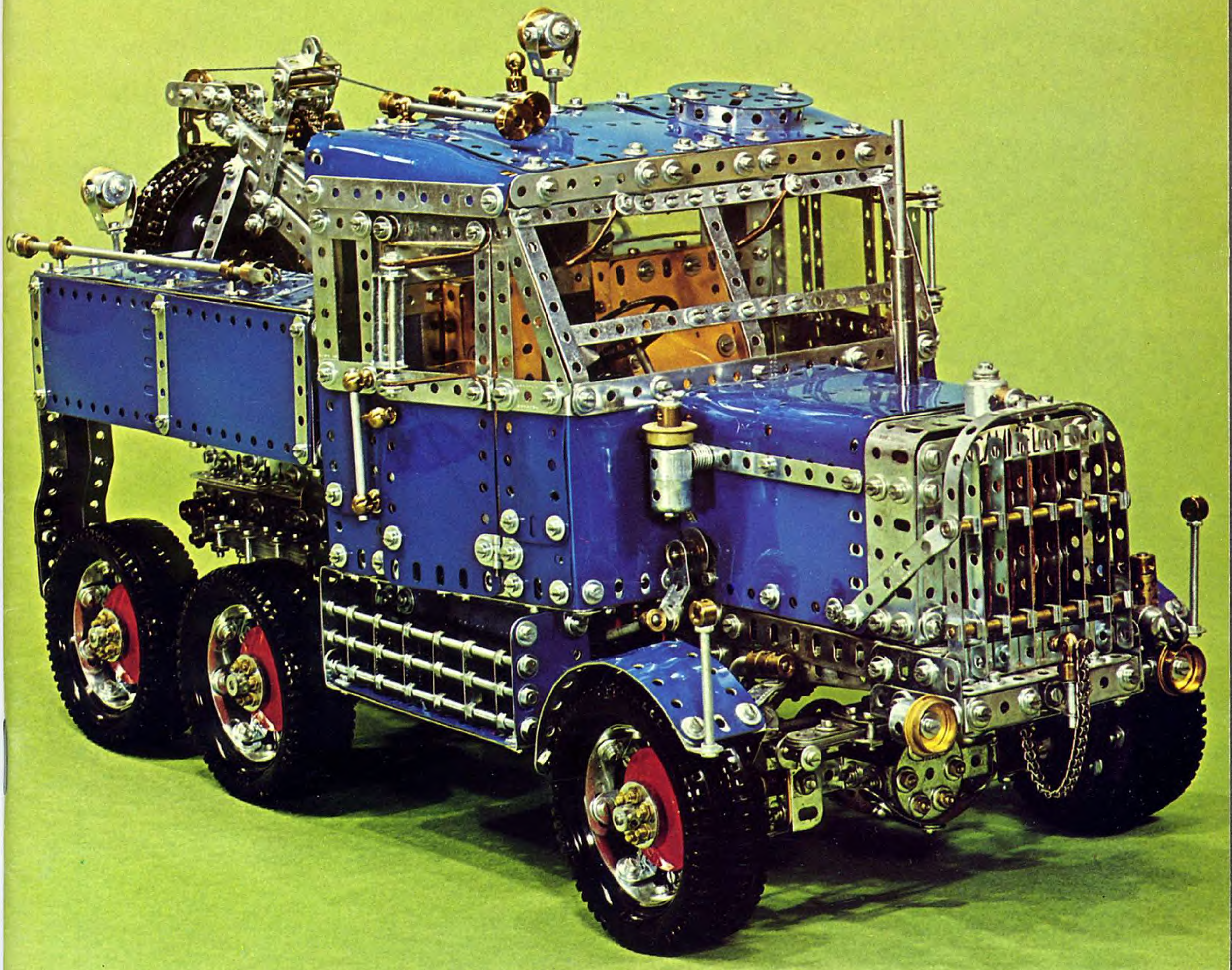
MECCANO MAGAZINE

Vol 62 No 2

1977 APRIL/JULY/OCTOBER • £1

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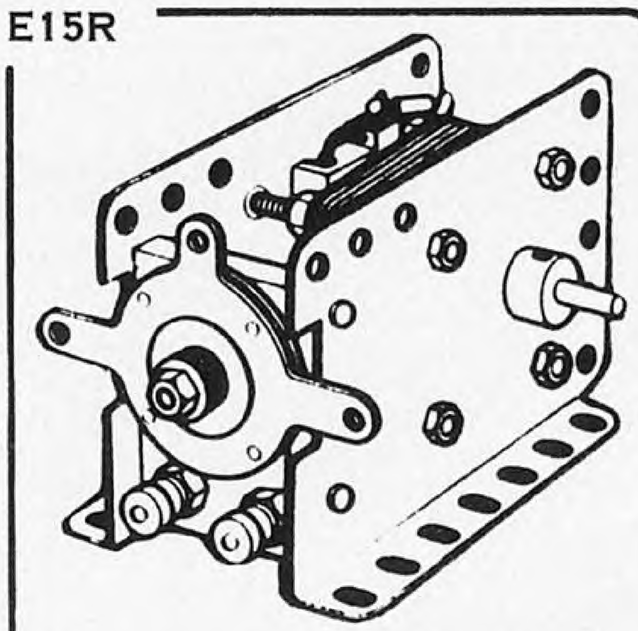
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ISSN 0309-1376

MECCANO MAGAZINE

ON THE COVER: A 6-Wheel-Drive 10-Tonne Recovery Tractor of the 1950s by Scammell. The model, by Terry Briggs, is described on page 68. Colour Photograph taken for Meccano Magazine by George Bushell & Son, Henley-on-Thames.

EDITOR . . . . . MIKE NICHOLLS

ASSISTANT EDITOR . . . PAUL SMITH

Production Director & Advertisement Editor . . . . . LIZ PHELAN

Editorial Consultant for Meccano Ltd . . . . .CHRIS JELLEY



After officially opening the new Merseyside Police Traffic Headquarters on Friday December 3rd, 1976, Huyton MP and former Prime Minister, Sir Harold Wilson, was presented with a specially-mounted miniature Police Accident Unit by Mr Kenneth Oxford, Chief Constable of Merseyside Police — a particularly appropriate memento of the occasion, as the model was a Liverpool-made Dinky Toy, manufactured by Meccano Ltd. The £1.25million, six-storey,custom-built new Traffic Headquarters is the largest and most comprehensive traffic complex in Europe.

EDITORIAL

Dear Readers,

First of all I must apologize for the very late appearance of this edition, this being due to several causes that have conspired against us. However, I am sure that you will agree that a late magazine is better than no magazine, so we have gone ahead with the printing having made only a few alterations in order to up-date the material. Unfortunately we were unable to remove obsolete advertisements, so it should be noted that prices quoted are those applying last April. In addition, the following advertisements no longer apply and should be ignored: *'Meccano Exhibition'* on p94; *'Meccano Exhibition Posters'*, *'Worth Framing'*, and *'Pennine Meccano Guild'* on p97.

As many of you will know, we had planned to produce the *MM* every month and, in fact, we did hope to launch our first monthly issue this September. However, through circumstances largely beyond our control, it has, at the very last moment, proved impossible for us to 'go monthly'. As independent publishers, we can not afford to produce a low-circulation quarterly magazine, and it has therefore been agreed that the Meccano Company will resume responsibility for production and publication of the *MM*.

I am sorry to relinquish the editorial chair after only two editions, but the continuance of the magazine is more important than my own feelings, and, anyway, I hope to be making extensive contributions to its future. I hope also that you have enjoyed my work, and I would like to thank those of you who have given me encouragement, support, criticism, and praise.

I am sure that the magazine will survive this latest change, and I hope that, in my short stay as editor, I have made some improvements and innovations that will remain and add to your pleasure. Meanwhile, I must get to work on my contributions for the next issue!

My very best regards to you,

Mike

MIKE NICHOLLS, Editor.

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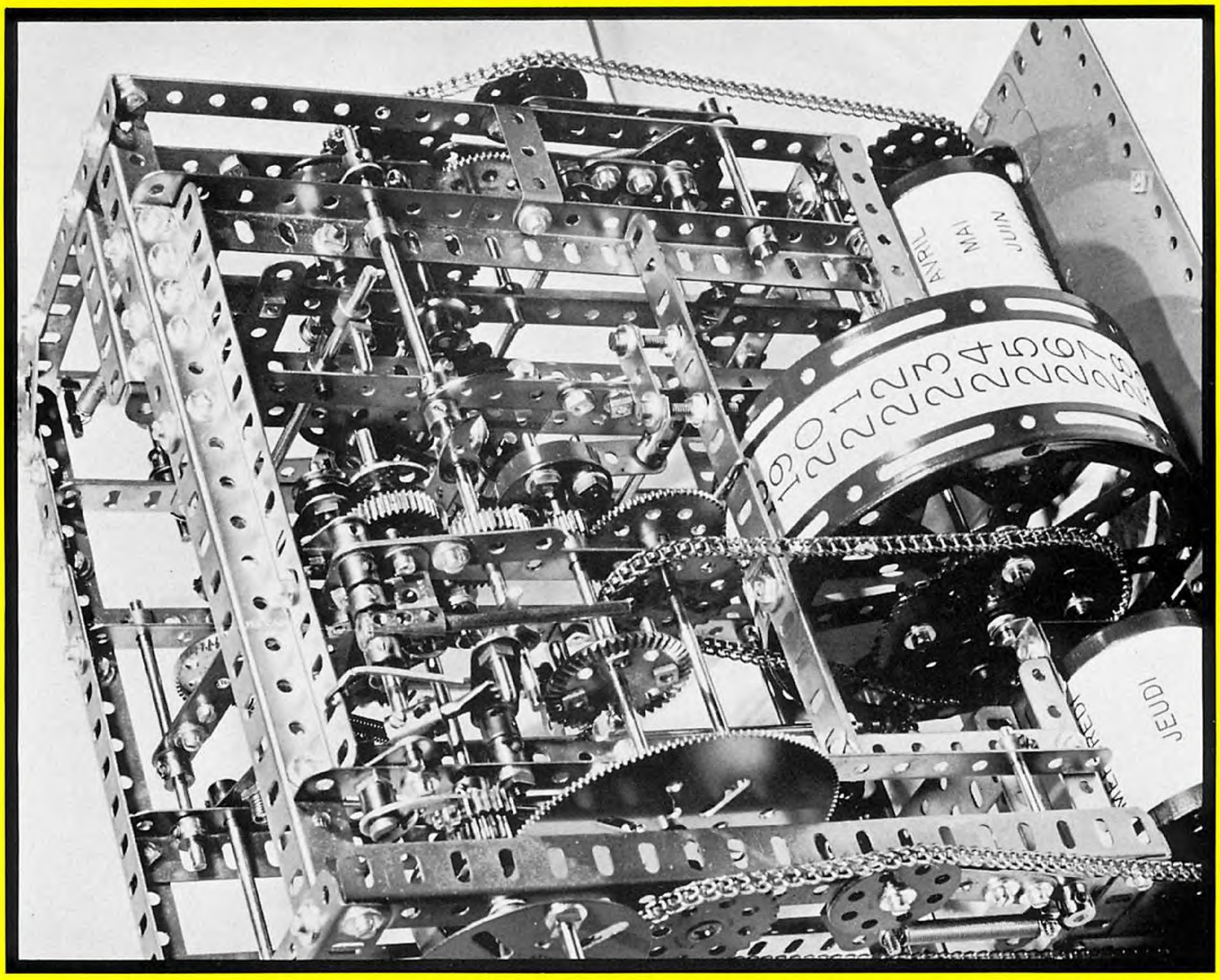
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FROM FRANCE:

A PERPETUAL CALENDAR UNIT

A FASCINATING, COMPLEX MECHANISM FOR THE ADVANCED MECCANO CONSTRUCTOR

DESIGNED BY GEORGES GOMBERT — DESCRIBED AND PHOTOGRAPHED BY BERT LOVE

Not all Meccano constructors are clock enthusiasts, but those who enjoy exploiting the Meccano system or even examining its potential will be fascinated by the complex mechanism designed by Georges Gombert of Southern France.

I had the good fortune to be invited to the Congres Des Amis Du Meccano at Easter time in 1975, where I saw the Perpetual Calendar Unit illustrated here. Designed as a sub-section of a complete weight-driven astronomical clock (see Meccano Engineer Nº 9, 1975 September p203), this unit was specially rebuilt by Georges in immaculate blue, gold and maroon French Meccano parts for the Easter meeting of the club.

Georges spoke almost no English and his French was too rapid for me to comprehend, so the pictures shown in this article must largely tell the story. As the ubiquitous camera gear had been carted along at the time, the four shots shown were taken at the club meeting in Paris.

A detailed description of the entire unit would take up more than a fair share of magazine space, so only a general description is attempted in this article. However, if we consider the display required of a perpetual calendar we can then look at the mechanism performing the required sequencing in some detail.

First of all, we require to show the seven days of the week — which is no real problem as this only requires a 7:1 reduction from a one day's (24 hours) input from the main clock motion. Next it is necessary to show the numbering of the days — which can be anything from 28 to 31 — and this is where the problems of a perpetual calendar mechanism begin to arise. As each month is accurately counted off with the correct number of days, the fresh month title must appear in due sequence. In each case the required title or day number is displayed on a rotating drum which presents the correct combination of day, date and month in the three slots formed by gaps in the front plating of the calendar unit.

Let us first consider the day of the week which appears on the left hand drum (viewed from the front panel of the unit). Fig.1 shows this clearly and indicates that the top of the drum is rotating towards the rear of the unit in order that JEUDI (Thursday) is displayed on the front panel before VENDREDI (Friday). This day drum is directly driven 1:1 by 1½" Sprocket Wheels from a short shaft carring a 133-tooth Gear Wheel. (See Fig. 1). In turn, the input shaft for the whole unit is directly coupled to the 133-tooth Gear by a 19-tooth Pinion giving us the 7:1 reduction required for the days of the week.

For demonstration purposes, a Face Plate with Threaded Pin is used on the input shaft, and one revolution will be equivalent to a 24 hour run. A 'pulse' type of input is required to move the day drum smartly to its new title at the end of the day. A spring-loaded differential can store this energy to give one full revolution to the input shaft when triggered at the end of a full day. Fig.1 shows a Pawl and Ratchet preventing reverse rotation of the input shaft, but a Meccano Cam half way across the rear of the unit has a spring-loaded 'keep' lever to ensure correct holding in registration of the day title at the 24 hour 'pulse'.

Transmission of all other motions to the calendar unit are via a sliding lay-shaft —clearly shown is Figs. 1 & 2 — running across the top of the framework parallel to the input shaft and carrying a 1" Gear Wheel, four Pawls with bosses, and two Collars. The purpose of these components will be discussed later in the text. Meanwhile we will look at the Date Drum and consider its timing-gear chain.

A pair of Hub Discs form this drum which is carried in simple ½" Angle Bracket journals as shown. The side shown in Fig.1 has a (3") 56-tooth Sprocket Wheel bolted to the Hub Disc by ¾" Bolts packed with Washers for stand-off clearance. The other side of the drum is carried on a Bush Wheel and careful study of Fig.2 will reveal an End

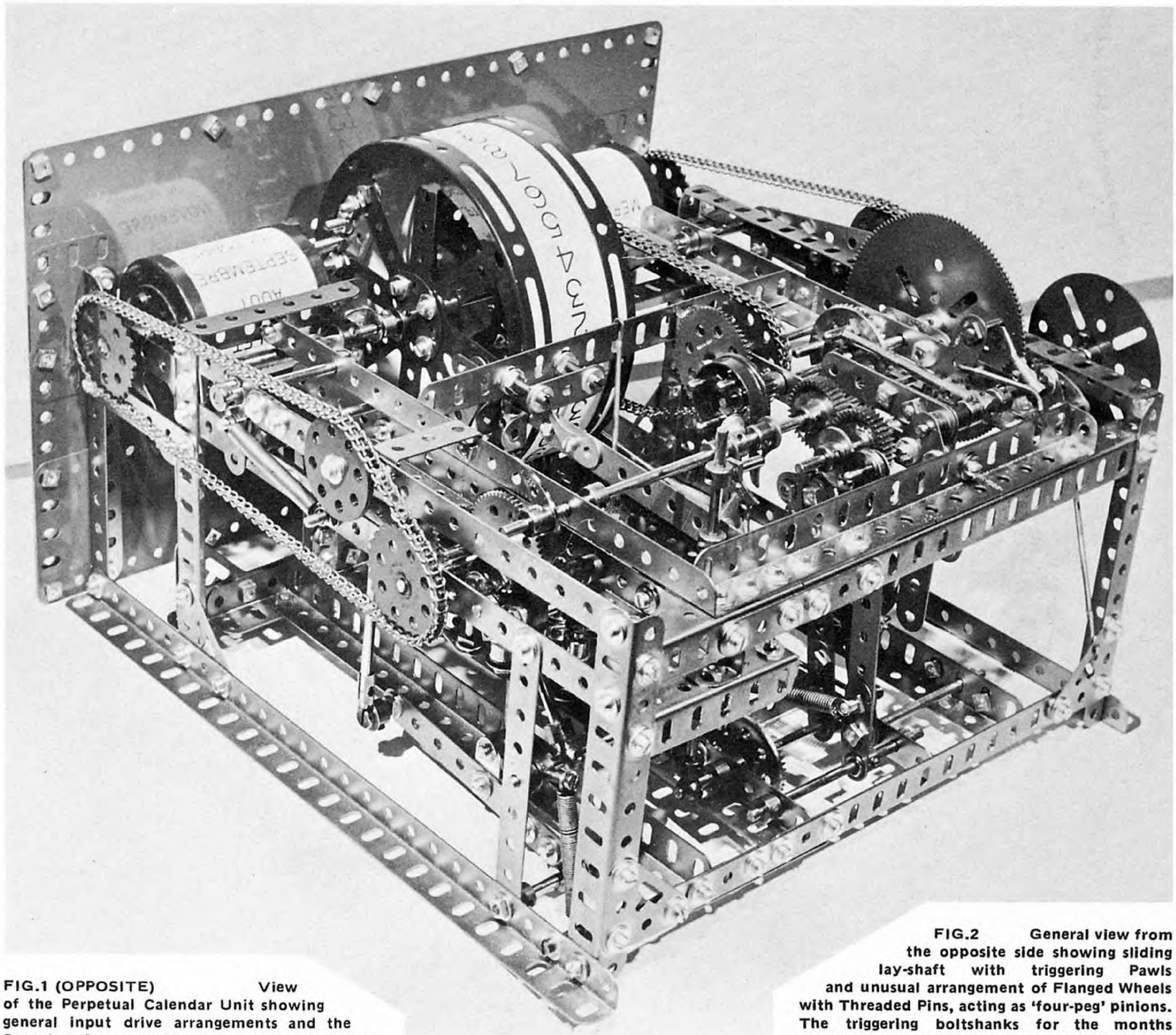


FIG.1 (OPPOSITE) View of the Perpetual Calendar Unit showing general input drive arrangements and the Sprocket Gears driving the various date drums

FIG.2 General view from the opposite side showing sliding lay-shaft with triggering Pawls and unusual arrangement of Flanged Wheels with Threaded Pins, acting as 'four-peg' pinions. The triggering boltshanks for the months can be seen protruding from the Hub Disc

Bearing adjacent to the Bush Wheel. Attached to the End Bearing is a standard Tension Spring secured to the side of the framework by an Angle Bracket (See also Fig.1). The purpose of this spring is to store a rotary tension as it is twisted by the advancing Date Drum to effect a rapid re-cycling of the drum to 'Day 1' when the end of the month arrives. This unorthodox use of the Tension Spring is just one of George's unique applications of standard parts in his calendar unit.

Now let us consider the gear ratios needed to get a full month's drive to the Date Drum. 31 is the highest number of days required, but 31:1 is an awkward ratio. Georges solves this problem by using the simpler 32:1 ratio, but employs only 31 steps as a maximum, arranging for the Date Drum to 'fly-back' to Day 1 when it has reached the maximum number of days required for any particular month.

If we go back to the 24 hour input shaft (Fig.1), we can see that this drives the parallel layshaft via a pair of 1" Gears maintaining a 1:1 ratio at this stage, but reversing the direction of the layshaft. The next shaft in line appears to run through the 133-tooth Gear mentioned earlier, but a 1½" Strip can be seen in Fig.2 adjacent to the boss of the large Gear where it acts as a stand-off journal for the short independent shaft of the 133-tooth Gear Wheel.

Fig.2 clearly shows that the first Axle Rod carrying the drive to the Date Drum is fitted with a large Flanged Wheel carrying four short Threaded Pins. This arrangement provides a simple but effective four tooth (or four peg) gear, very suitable for the rapid pulse input from the 24 hour shaft at the end of the day. Motion to the four pegs, one at a time, is imparted by one of the Pawls with boss on the layshaft. By virtue of the direction of rotation of the layshaft, the outer curve of the Pawl arm gives a smooth lifting and turning motion to the pins in the Flanged Wheel, moving it a quarter of a turn at the end of each 24 hours.

Just behind the Flanged Wheel (see Fig.1), a 15-tooth Pinion passes-on the quarter turn of the shaft to a 60-tooth Gear Wheel on an Axle Rod driving the Date Drum via Sprocket Chain from a (1½") 28-tooth Sprocket Wheel. We thus have a gear ratio of 4:1x4:1x2:1 = 32. Again we must have a positive register for the Date Drum which is checked in one direction by the twisting resitance of the Tension Spring already mentioned.

Attention should now be given to the large Bevel Gear fixed to the shaft carrying the Flanged Wheel with four pins. It is clear from the illustrations that this Bevel Gear also carries four Short Threaded Pins, and these provide the necessary register for the Date Drum — being locked at the quarter turn by a falling 2½" Axle Rod. This can be seen in both Fig.1 and Fig.2, mounted in a Coupling free to hinge on a 3" Axle Rod running parallel to, and just above, the input shaft. Only when the Date Drum re-cycles does the locking rod lift clear of the Bevel Gear pins to allow it to run back. An extended bell crank system trips the locking rod by means of levers connected in the lower portion of the framework as shown in Fig.4.

Indexing of the Bevel Gear trip rod is by means of a Centre Fork in a Short Coupling fixed to the 3" Axle Rod previously mentioned. The teeth of the Centre Fork are located, one at a time, by a Crank fitted with a Threaded Pin, and this can be seen in Figs.1 & 2.

Further study of Fig.4 shows a peculiar assembly in a Boiler End secured by Rod Sockets to a fore and aft 9½" Angle Girder at the base of the framework. The transverse threaded bores of the Rod Sockets (outer) are used as bolting points for the Boiler End and the inner or centre Rod Socket carries an Electrical Pivot Bolt [Part 545] as the lower bearing for the 3½" Pivot Rod forming the governor shaft.

A governor is necessary to prevent the

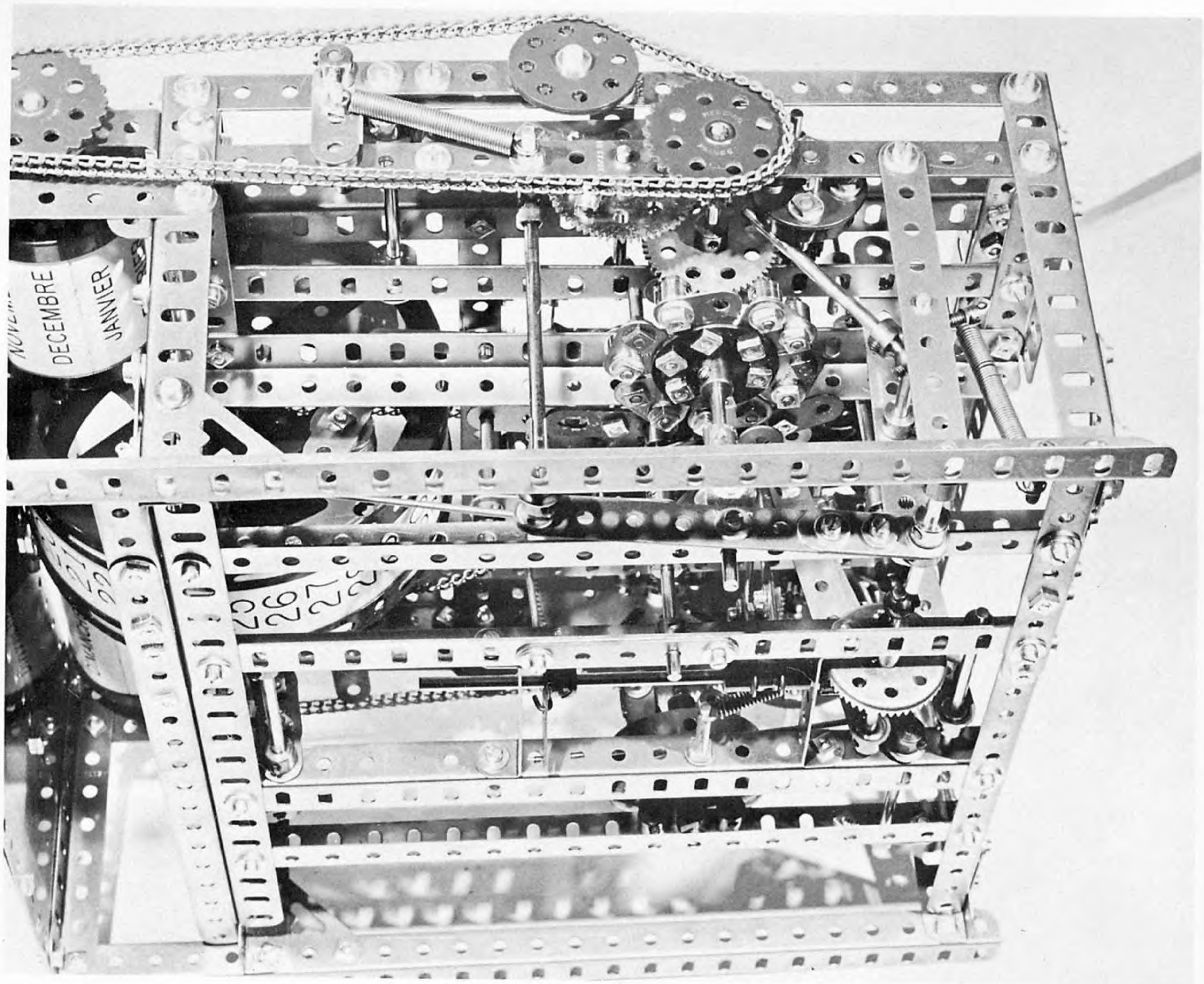


FIG.3 Under view showing the 12-position timing cam for the different lengths of the months. The cam is lifted once every four years to allow 29 days in the February of a leap year

Date Drum 'flying back' out of control. Bob weights for the governor are Collars bolted and lock-nutted to 1½" fibre Insulating Strips [Part 503] which pivot on Threaded Pins in either end of a Double Arm Crank.

These Threaded Pins also secure ½" Angle Brackets holding 1" Wiper Arms [Part 531] stood off by one Washer thickness to act as 'dampers' to the flying bob-weights.

The Double Arm Crank is not bolted to the governor shaft, but it is supported by a Collar from below, and is under pressure from a Compression Spring above it. This prevents any 'overun' of the governor shaft.

The governor is directly driven from the large Bevel Gear by a small Bevel at the upper end of the 3½" Pivot Rod, the upper journal for which is another Electrical Pivot Bolt with pivot hole set into a Fishplate critically positioned under the upper fore and aft 9½" Angle Girder. This can just be seen adjacent to the toothed face of the Large Bevel Gear in Fig.1.

Now we must give our attention to the other side of the mechanism and study the Hub Disc of the Date Drum which can be seen in Fig.2. A series of Bolt shanks, differing in length, can be seen protruding from the Hub Disc close to its rim. The spacing of each bolt shank is arranged exactly at the 'one day' interval ie $^{1}/_{32}$ of the full travel of the drum, and at the diameter chosen for the settings; the divisions approximate to ½" spacing. These Bolt shanks of various lengths are set up on a 1½" Flat Girder secured by Fishplates, and require a certain amount of 'juggling' to take up the positions shown in Fig.2.

As the days of the month approach their end, the Bolt shanks come round to the rear position where they strike a horizontal trip lever made from a 5½" Perforated Strip extended by a 3" Narrow Strip overlaid by two holes. This can be clearly seen in Fig.2, and is identified by a Pawl-Without-Boss bolted on at the joint between the two Strips.

The Pawl in fact holds the trip lever in the normal working position by having the tip of its arm bearing against a 1½" Strip stood off from the cross Girder by ¾" Bolts as shown. The forward end of the trip lever rides in the slot of a Strip Coupling and, being a Narrow strip, there is sufficient depth in the Coupling slot for it to fall when triggered in the downward direction by the Bolt shanks on the Day Drum.

A ½" x ½" Double Bracket dropped into the slot of the Coupling acts as a self-locating packing to take up some of the 'slop' in the width of the slot, but still permits a free slide to the Narrow Strip. The lateral position of the trip lever is automatically adjusted by a 12-position cam which locates the position of the Strip Coupling according to the month in register.

It is obvious that the shortest protruding bolt shank on the Hub Disc will meet the trip lever first, and hence will trigger the 'fly-back' of the Day Drum after the shortest run, ie 28 days for the normal February period. The second longest Bolt shank allows the drum to run on for one more day and so only comes into action *once every four years* when February has 29 days in a leap year! The third Bolt shank allows rotation for 30 days, and the longest shank — just hidden from view in Fig.2 — 31 days.

Whatever the month may be (determined by the position of the Strip Coupling), when the appropriate Bolt shank triggers the trip lever, things really begin to happen! The trip lever is actually held against its Pawl stop by Spring Cord tension on a vertical Axle Rod pivotted to the trip lever by the second Collar from the top of the Rod, and this can be seen in Figs.1 & 2.

The bottom end of this Rod is fixed in a Handrail Coupling driving a Contrate Gear on a 4" Axle Rod which also has a release lever fitted to a Crank on the same shaft. This release lever acts in unison when the final 24 hour impulse is given to

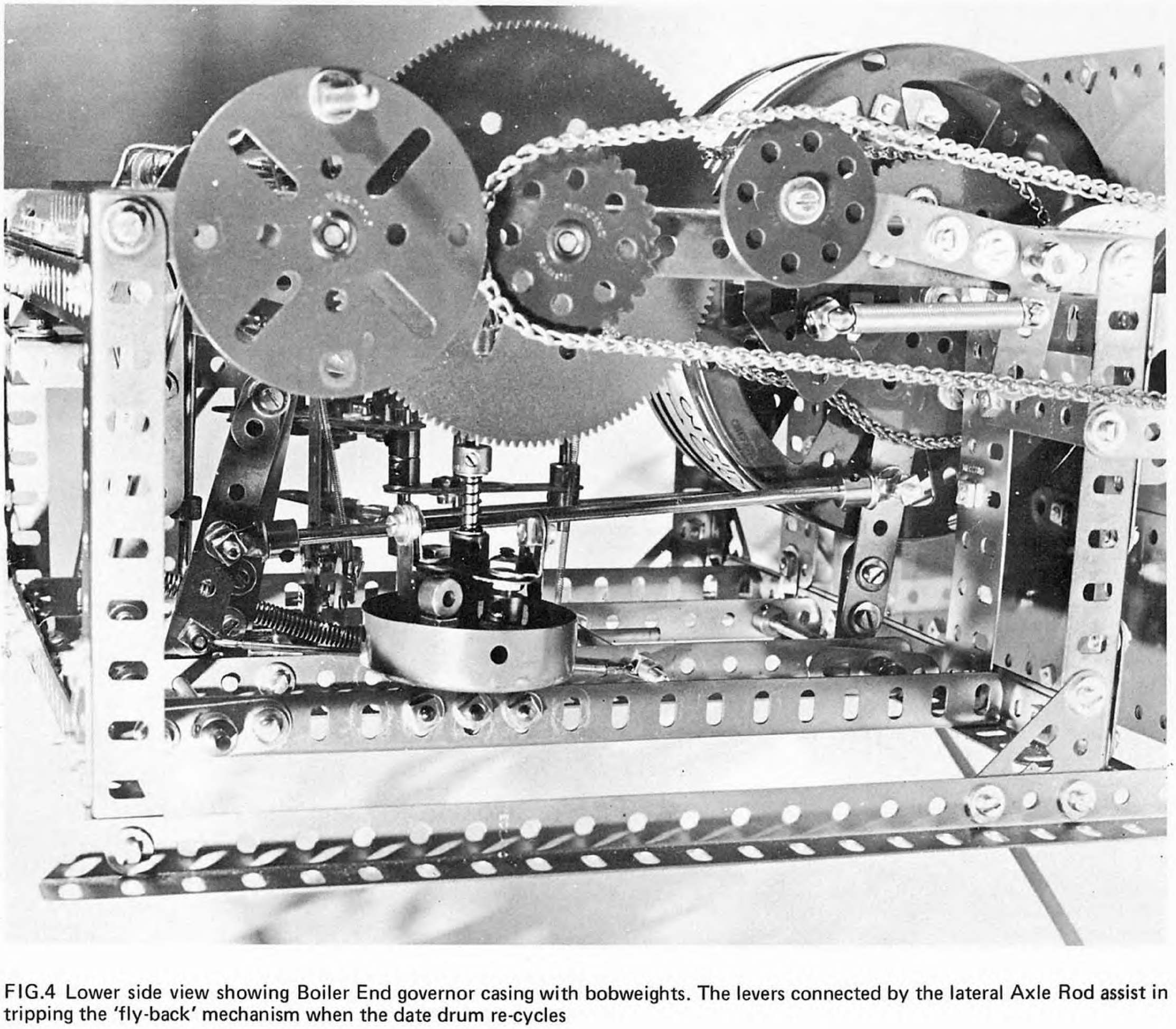


FIG.4 Lower side view showing Boiler End governor casing with bobweights. The levers connected by the lateral Axle Rod assist in tripping the 'fly-back' mechanism when the date drum re-cycles

the input shaft at midnight on the last day of the month.

The motion applied to the large Contrate Wheel drives a 19-tooth Pinion on a horizontal Axle Rod in the bottom of the framework with sufficient movement to work a vertical Perforated Strip attached to the Rod via a Crank; the Strip acting as a slide lever for the overhead layshaft mentioned earlier in the text. The result of throwing this lever is that the layshaft moves to its left, still engaging with the 1" Pinions, but the Pawl with boss on the far end of the layshaft — clearly seen in Fig.2 — trips a second large Flanged Wheel equipped with four Threaded Pins moving it a quarter turn.

The left-hand under-view of Fig.3 shows this Flanged Wheel and a 19-tooth Pinion behind it engaging a 57-tooth Gear Wheel directly on the drive shaft to the Month Drum. As this is by 1:1 ratio Sprocket Wheels, the step-down ratio from the Flanged Wheel is 4:1x3:1=12:1. Thus, at the end of the month the 'end of the day' trigger pulse moves the Date Drum $^{1}/_{12}$ of a revolution exactly, to display the name of the new month. The Date Drum is re-cycling to Day 1 while this is going on, and part of the energy stored in the Tension Spring is used from the Date Drum 'fly-back' to trigger a lever-and-rod system below, re-setting the horizontal trip lever ready for tripping again at the end of the next month.

The trip lever is drawn to the rear for engagement of its Pawl-Without-Boss by the second Pawl with boss (from the left in Fig.2) on the layshaft which strikes against a Threaded Pin set in a Collar near the top end of the vertical Axle Rod pivotted to the trip lever.

Fig.3 gives an excellent view of the 'heart' of the whole Calendar Unit in the shape of a 12-position cam built up from standard parts. A 6-Hole Bush Wheel has eight 1" Triangular Plates bolted to it so that twelve cam sections can be mounted. Collars are used at each stage where the month position requires 31 days. Threaded Pins are also set into the Triangular Plates where only 30 days occur, and where February comes up, the cam position is left with a vacant hole in the Triangular Plate, and this can clearly be seen in Fig.3.

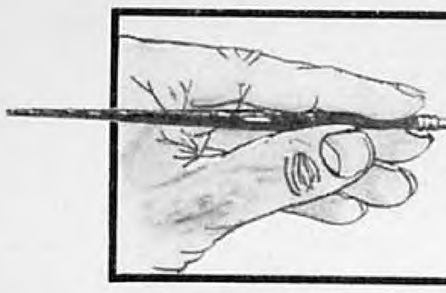
Bearing against the cam sections is a horizontal 3" Strip fixed by a Crank to a vertical Rod which carries a second Crank about 1½" below. These two Cranks are extended by 2½" Strips to carry another vertical Rod set in two more Cranks free to swing across the unit in a limited arc. It is the top of this Rod that carries the main horizontal trip lever for the month timing. Hence, it is the twelve position cam which sets the critical position of the trip lever and therefore the number of days elapsing before the Date Drum 'flies back'.

The cam is turned via a small Contrate Gear and 50-tooth Pinion (1:1) by the 57-tooth Gear-shaft operating the Sprocket drive to the Month Drum, so the timing cam moves one stage forward at the exact time of the change-over of the month.

Again, indexing for the Month Drum is held by a 2½" Rod, spring-loaded in a Handrail Coupling (see Fig.3), and Bearing against the lower Threaded Pin in the Flanged Wheel.

"A perpetual Calendar?.....", well as a final touch by Georges Gombert, a 60-tooth Gear Wheel is driven by a 15-tooth Pinion from the 57-tooth Gear shaft, thus getting a 4:1 reduction from the Month Drive. As the Month Drum takes a whole year to make one revolution, the 60-tooth Gear takes four years! By the simple expedient of a Bolt shank set in a hole in the 60-tooth Gear, the whole Cam shaft if raised by rod and lever at the end of January in a leap year to allow a second cam shaft to ride against the bare shaft, thus giving a 29 day run to February.

Can you beat that?



hobby spot

Birmingham • '77

A REPORT ON THE BRITISH TOY AND HOBBY FAIR

Occupying 32 000 square metres of the National Exhibition Centre at Birmingham (75% more space than in 1976 at Brighton), this year's British Toy and Hobbies Fair was the largest-ever UK toy trade fair.

Over 400 toy manufacturers and agents from some 30 countries attended, and these included national groups from France and Spain.

Toys and playthings, games, carnival decorations, childrens' books, hobbies, models, and crafts were displayed and visited by a record 7 359 buyers from 60 countries.



HORNBY RAILWAYS' NEW HST

Such are the statistics of the 1977 British Toy and Hobbies Fair where manufacturers unveil their new products for the coming year. The British industry is a large and growing concern, producing an estimated average of £1 million a day at retail prices. Every week, British toy-makers produce over 6 million cars, one million soldiers and one million dolls and soft toys.

Perhaps the most interesting part of the Toy Fair for *MM* readers — after Meccano itself of course — is the hobby field. A hobby has been described as 'a regular leisure pastime performed by people of any age group, involving such activities as collecting, constructing, or the application of creative skill'. Judging by the wide variety of products at the Fair, hobbies are enjoying a boom time, and the manufacturers are satisfying the demands of people from all walks of life.

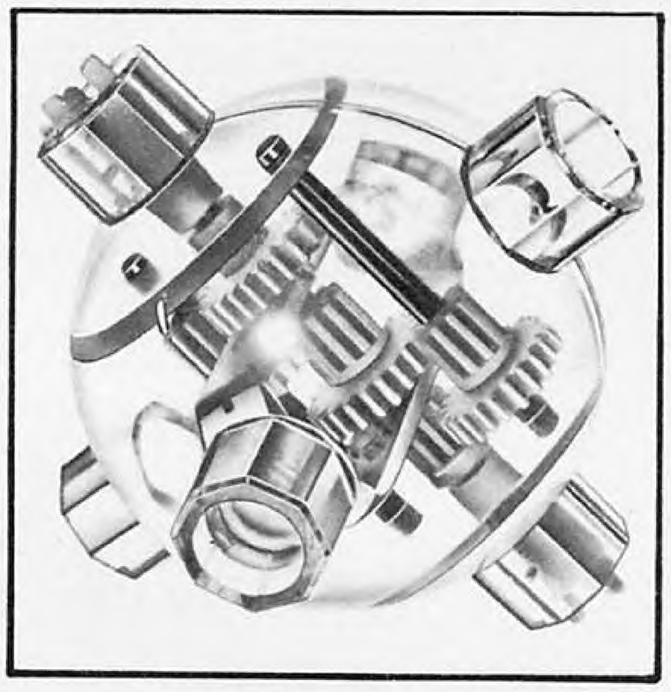
So vast is the range of new products that it is very difficult to decide which ones to mention in this necessarily limited review. The new Meccano Products have of course been fully covered elsewhere in this edition and in last January's edition, and new diecast models will have their own place in future editions of *MM*, so this article will concentrate of hobby innovations of other types that we feel will be of interest to our readers.

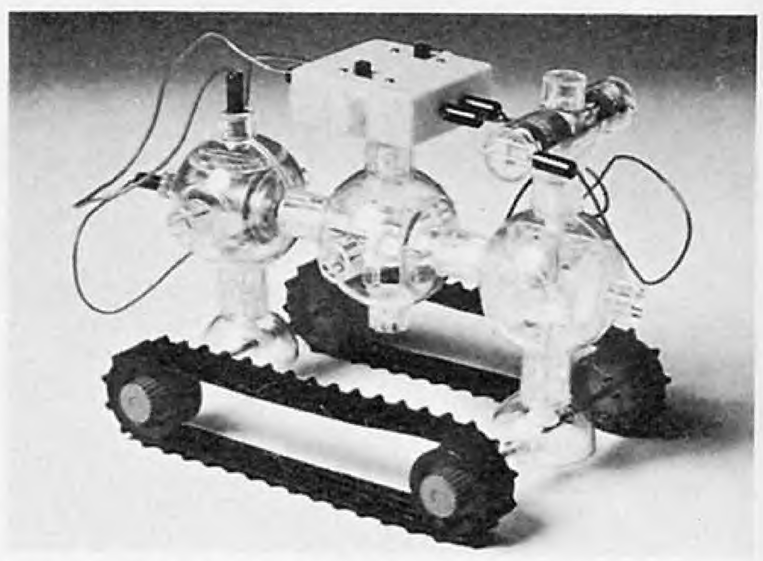
TURNER RESEARCH

1976 has been an exciting and active year for Turner Research Ltd, and their stand at the Birmingham Fair reflected their growth and development during the last twelve months, with products covering a whole spectrum of scientific and constructional toys, games and craft kits.

In addition to increasing their well-established range of 'Plasticraft' plastic embedding kits, a completely new range of Science Kits were launched. Two kits will be available: a Chemistry Kit containing material and equipment for over 500 experiments from organic and biological chemistry, electro chemistry, food analysis and crystallography, to making crime detection kits and soap; and a Physics Kit containing over 100 precision-engineered components offering 280 different experiments with liquids, pressure, heat, sound, magnetism and optics. The kits will retail at £16.95 and £14.95 respecitively, and to complete this group, a new range of microscopes will also be available.

Whilst on the Turner Research stand, we were met by Mr Peter Turner, the Company's Chairman and Managing Director, who suggested that of all their products, we would be most interested in their space-age construction kit called 'Capsela' which was introduced late last year. Backed by Christmas TV advertising, Capsela became an immediate success.





LEFT: A Multiple-Stage Speed Reduction Capsule ABOVE: A model of a tracked vehicle. A Speed-Reduction Capsule can be seen in the centre of the model; six other types of Capsule are available.

Capsela, made in Japan and marketed in the UK by Turner Research, is built around a series of transparent capsules, each having a distinct mechanical or electrical function. The capsules are joined together by octagonal coupling pieces, and drive is transmitted through these joints by dog clutches. In addition to the possibilities of learning afforded by joining together the capsules, these transparent units are themselves capable of being fully dismantled.

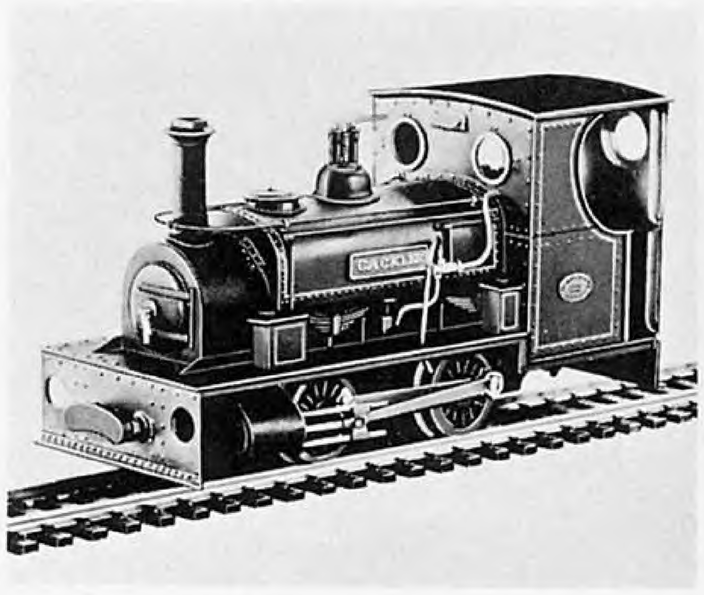
A wide variety of vehicles and other models are possible, as well as powered floating models and amphibious craft; and although Capsela models entirely lack the realism of their Meccano counterparts, they certainly teach the *concepts* of mechanical engineering in a form that does not require a great deal of time for construction.

PECO

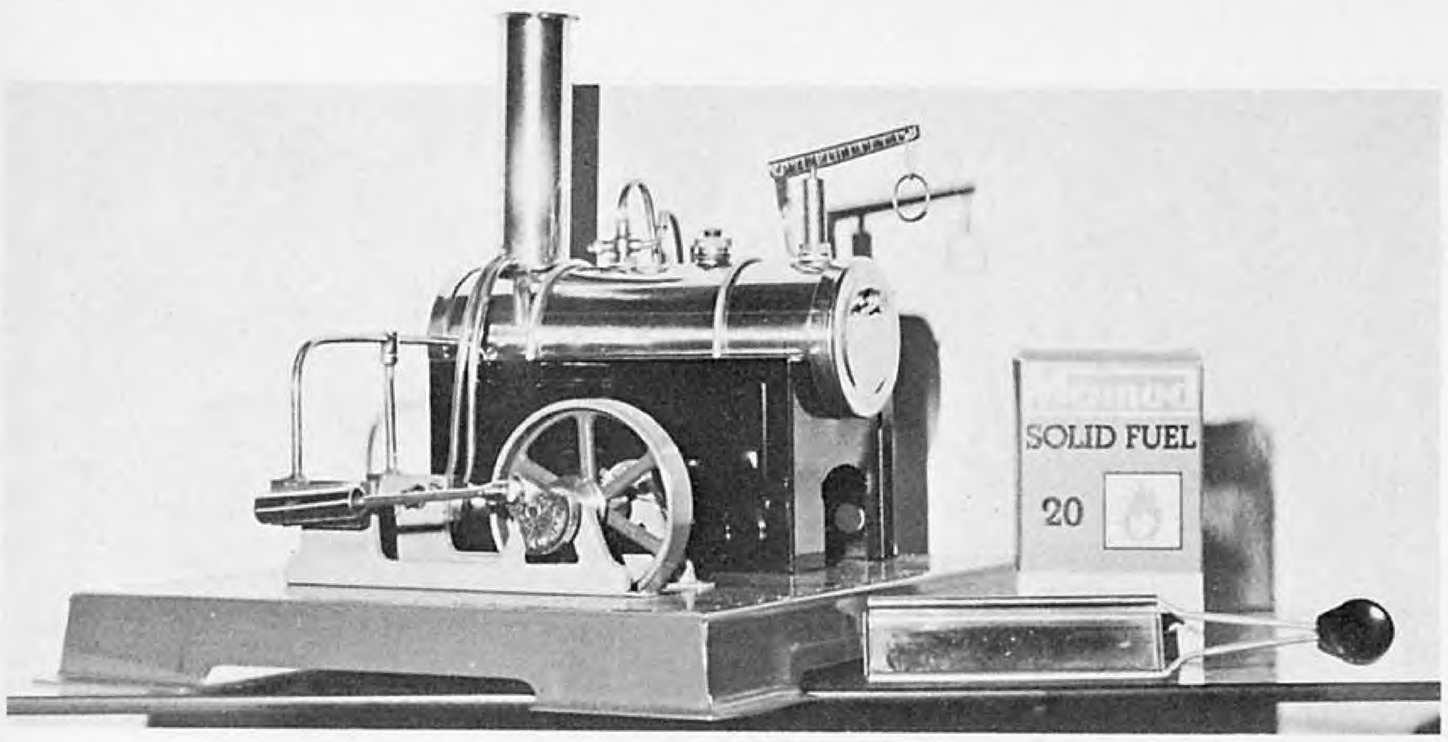
Wales is famous for many things of beauty, especially its narrow-gauge passenger-carrying railways now operating as tourist attractions, and for lovers of narrow-gauge railways (model and real-life!) Peco have inroduced a new series of locomotives, coach and wagon kits to be known as the 'Peco Great Little Trains' on the 'Great Little Trains of Wales' theme.

The Peco models are available in two sizes to suit every model enthusiast's requirements. Particularly interesting are the new models to the 7mm (0 gauge) scale operating on a track gauge of 16.5mm (a combination known overall as 0—16.5), which provide the wealth of detail of large-size models with small space requirements, as sharp curves are commonplace on the prototype narrow-gauge systems.

The 00—9 size models to the popular 4mm scale have a fascination all their own and are proportionate in size to the standard 00—gauge model railways.



In passing, Peco have also introduced a miniature fencing system that is designed to conform to the varying contours of the model ground. Why didn't anyone think of that before?

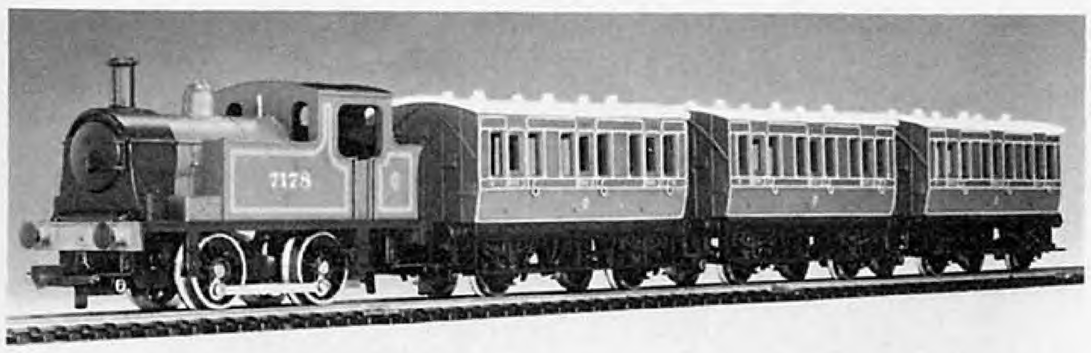


MAMOD

The big news on the Mamod front is a change to solid fuel. All the models in the famous range manufactured by Malins Engineers are now supplied with solid fuel burners for use with Mamod solid fuel tablets, adding an extra note of realism and convenience to these magnificently-engineered models.

The fuel is available in special Mamod packs and, for owners who wish to convert their existing models, the new burners are available separately.

Our photograph shows Mamod's largest stationary engine, the Superheated Twin Cylinder SE3 with the new burner and fuel pack. Like all Mamod sationary engines and machine tools, the SE3 has a base perforated for use with Meccano.





The Hornby Railways RURAL RAMBLER set in Somerset & Dorset livery

HORNBY RAILWAYS

A highly attractive model of British Rail's new High Speed Train has been introduced by Hornby Railways. This up-to-the-minute model features in set No. R685 which includes the HST Power Car — the BR version of which produces virtually the same power as many main-line diesel electric locomotives but weighs considerably less — a BR MK3 centre coach, a dummy power car, track, and other accessories.

The HST is British Rail's most up-to-date operational passenger train and has a top speed of 201 km/h. The Hornby model is powered by a Silver Seal Ringfield motor unit, and the headlights illuminate in the direction of travel when the power is on.

The new HST set has a recommended retail price of £18.95.

Also of interest to Hornby Railway fans is the welcome release of the 'Rural Rambler' Somerset and Dorset Joint Railway 4-wheel coach for separate sale, and the re-introduced *'Evening Star'*. A name that will be familiar to lovers of vintage Hornby Trains is Palethorpes Sausages, and although not one of Hornby Railway's many *new* items — it was announced early last year — their new six-wheel Palethorpes wagon is now becoming more widely available. An interesting point that this wagon shares with the other Hornby six-wheelers is a sideways-sliding central unit connected to pivotable couplings so that the overhang difficulties encountered by non-bogie stock on tight curves are overcome. A beautiful model in its own right.

There are lots of new items in the Hornby line; all are illustrated in the 1977 Hornby Railways full-colour catalogue now on sale.

WILESCO

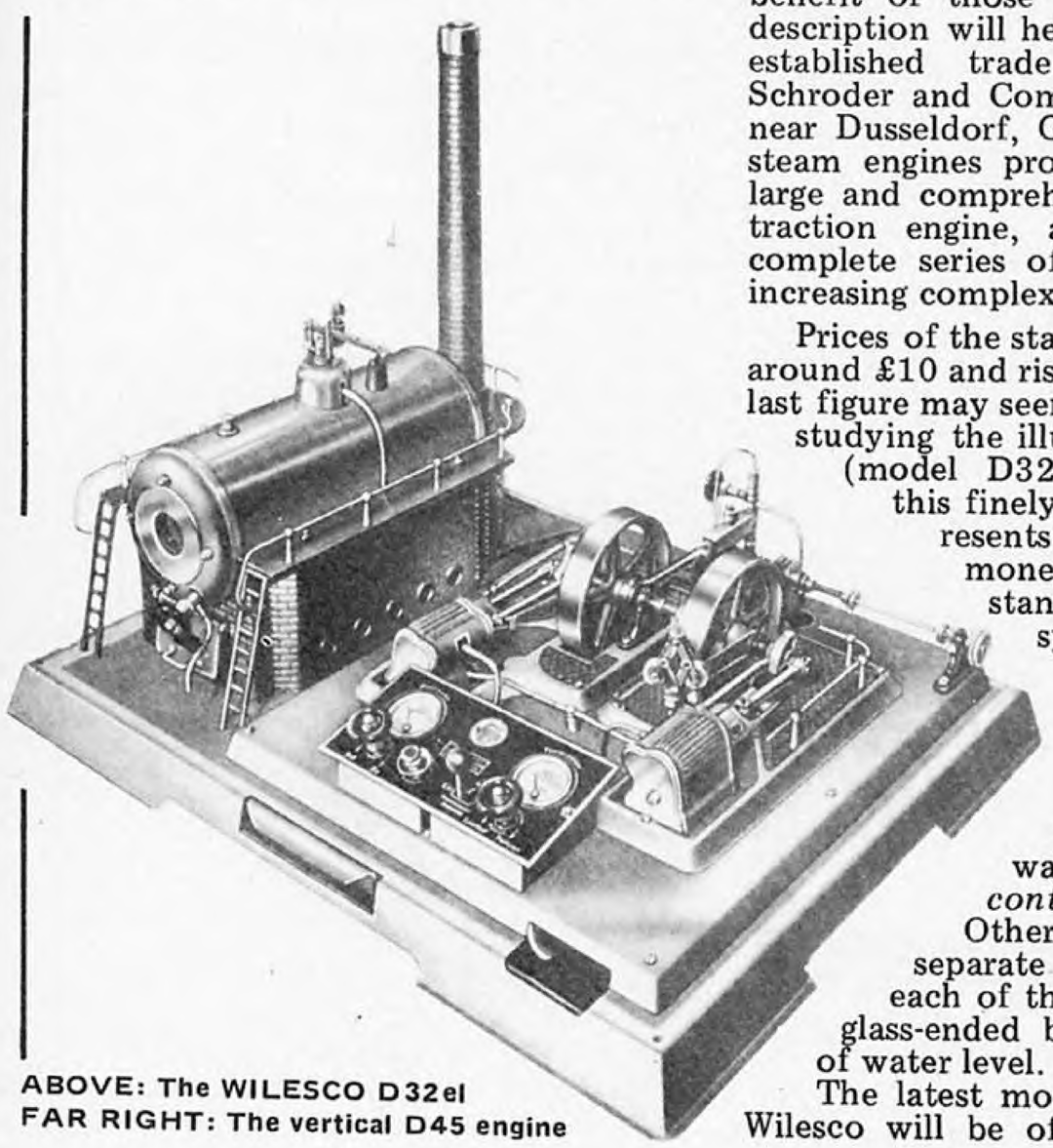
A stand that would have gladdened any steam enthusiast's heart was that of Burtons Model Importers Ltd. Burtons are (amongst other things) the sole British agents for the German Wilesco models, and a glittering array of shining steam engines — or should we say Dampfmaschinen — formed part of their display at the Fair.

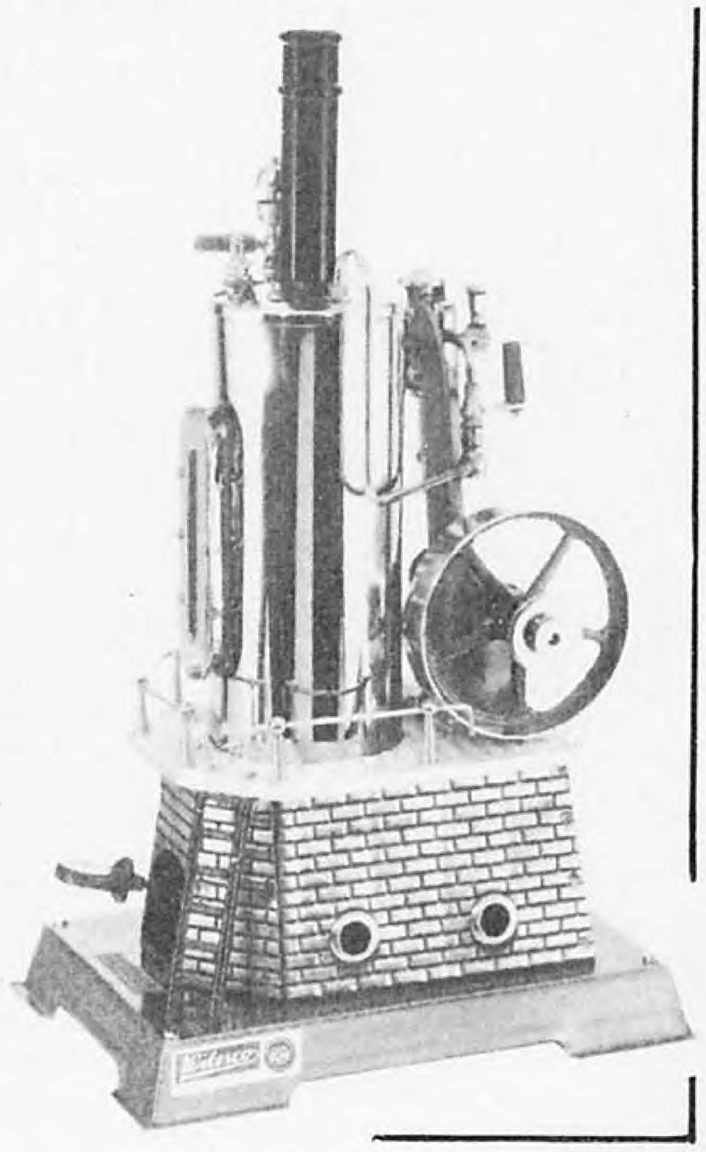
Many of our readers will be familiar with the Wilesco name, but for the benefit of those who are not, a brief description will help. Wilesco is the well-established trade name of Wilhelm Schroder and Company of Ludenschied, near Dusseldorf, Germany. The range of steam engines produced by this firm is large and comprehensive, and includes a traction engine, a steam roller, and a complete series of stationary engines of increasing complexity.

Prices of the stationary engines start at around £10 and rise to around £176. This last figure may seem a little excessive, but studying the illustration of the engine (model D32el) will indicate that this finely-engineered model represents more than value for money. Apart from the standard solid-fuel firing system, the D32el also incorporates an electric immersion heater, and the use of this feature together with the machine's built-in water feed pump enables *continuous operation*

Other features include separate pressure gauges for each of the twin cylinders, and a glass-ended boiler for visual check of water level.

The latest model steam engine from Wilesco will be of particular interest to Meccano enthusiasts. Just released at the Nuremburg Toy Fair is the D45 which has a vertical, centre-flued boiler similar to the first Meccano Steam Engine of 1914 (see *MMQ* 1976 October). We hope fully to review both the D32el and the new D45 in a future issue.





ABOVE: The WILESCO D32el
FAR RIGHT: The vertical D45 engine

AMONG THE MODEL-BUILDERS with 'Spanner'



FAIRGROUND ARCHITECTURE

One subject of great interest to many Meccano modellers is that of the fairground and all its associated machinery, (showman's engines — a favourite subject of fairground modellers are just one example). Stuart Day, of Portsmouth, England, who, is at present building a Scenic Showmans Engine, has written to tell us of a book of prototype information that will be of interest to all constructors of fairground models.

The book is '*Fairground Architecture*' by David Braithwaite, and is published by Hugh Evelyn of London in both hard and soft-bound editions. "Although fairly expensive to buy," writes Stuart,"the book is a mine of information for the interested constructor, dealing with aspects such as construction, decoration and transportation, and contains many historical notes, including a detailed glossary dealing with special showmans' terms etc."

SCALED-UP CASING FOR THE CRANE MOTOR.

Still on the subject of fairground models, Brian Rowe of Newton Abbot, England has sent details of his new Showman's Engine dynamo that back-drives the whole model. Brian refered to the development of this unit in *ME12*, and in *MM* 1977 January. He writes:

"Since the introduction of the 4.5-volt Crane Motor in the Crane Building Kit, I have given some thought to the use of the Unit as a power source for a Showman's Traction Engine — to replace the built-up dynamo usually made from Boiler Ends. I have achieved this in a manner that dispenses with a Motor-with-Gearbox in the engine base, and it is of course, much cheaper:

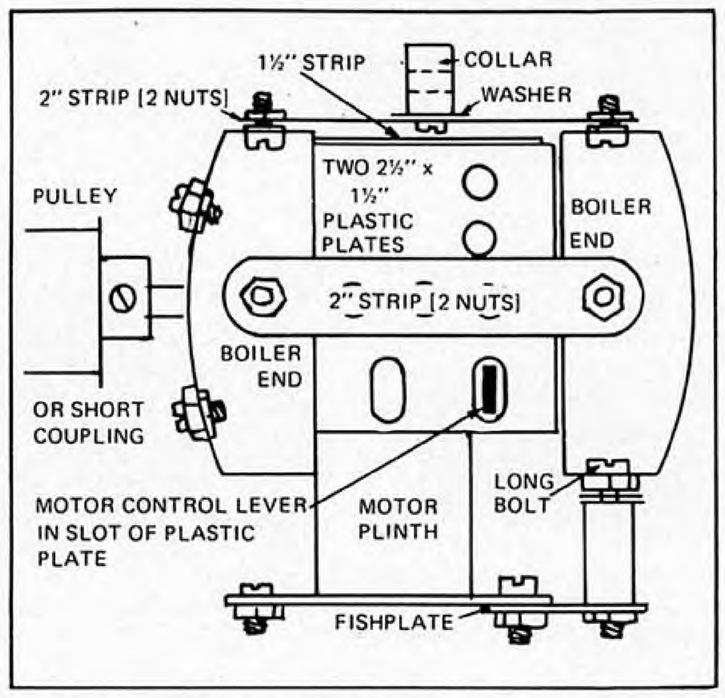
"Attach the Motor by the four corners of the base to a suitable Plate of 1½" width (this is for the dynamo platform).

The control lever of the Motor is fixed in the down position, but is not used in this application. Next, attach a Fishlate by its round hole to the middle hole of the Motor base, with the slotted hole outwards from the Motor connexion side.

"Prepare two leads with Miniature Plugs [Part 612] and insert them into the Motor connexions; the leads should be long enough to reach the Battery Box or transformer.

"Fix four Bolts around the inside flange
of a Boiler End — with the heads of the Bolts inside the flange — attaching the nuts *tightly*. One of these is a 9.5mm Bolt and, this is used to attach the Boiler End to the lug of the Fishplate at the base of the motor; Washers being utilized to bring the centre hole of the Boiler End in line with the armature shaft of the Motor.

"The two Motor leads are passed through one of the slotted holes in the Boiler End *before* attachment to the Fishplate. Do *not* tighten the Boiler End to the Fishplate at this stage. To another Boiler End, attach 3 similar Bolts with Nuts. One of these Bolts also holds a 1½" Strip, and the slotted ends of two 2½"x 1½"Blue Plastic Plates overlapped on the inside of the Boiler End.



"The 1½"Strip is also on the inside of the Boiler End and serves to hold the ends of the Plastic Plates where they overlap at the top of the casing. The bottom hole of this Boiler End flange is not fitted with a Bolt and Nut.

"Three 2"Strips space each Boiler End, and are placed over the three Bolt shanks in each flange and held by Nuts.

"The Boiler End with the Blue Plastic Plates is passed over the driving spindle of the Motor until the edge of the flange rests against the Motor pillar. One of the slotted holes in a Plastic Plate passes over the end of the Motor control lever and is unobtrusive.

"Tighten the Bolt held in the Fishplate by a Nut on it's shank, and the whole casing is now firm and ready to be connected to the power source.

"To drive a flywheel on a Showman's Engine, it is best to use a Short Coupling on the Motor drive shaft with a made-up flat belt; or a pulley made-up from a Chimney Adaptor, ¾"Washers and a Rod Socket, gives a good scale pulley for other applications.

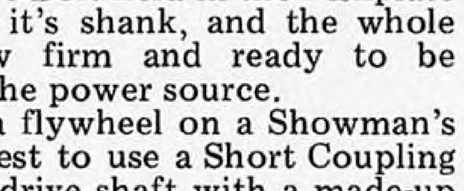
"Reverse drive is taken from the Battery Box or transformer control, but this would not be used in the case of a Showman's Engine where the gearbox is incorporated in the motion.

"Various embellishments to the Motor can be added including a lifting eye in the middle of the top 2" Strip and an indicator board can be built on to the front facing 2"Strip.

"On test, the unit works well, and develops ample torque with a neat appearance.

Note: Dummy brush gear can be built up on the Boiler End on the connexion side, but one hole must be left clear for the Motor leads to be introduced. I suggest two Wheel Discs spaced with Collars and two or three Tension Springs wrapped around the spacing collars."

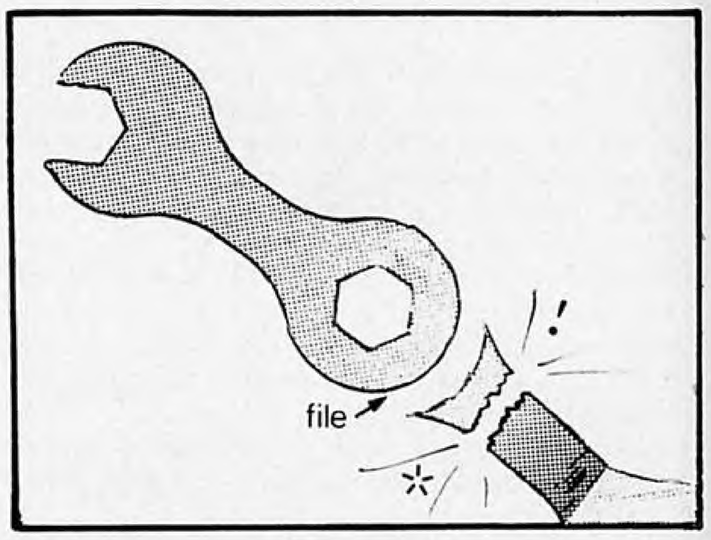
SPINDLES & SPANNERS



DENNIS HIGGINSON secretary of the Stevenage Meccano Club and prolific inventor of useful and interesting items, has written these hints:

Firstly, for those readers with Plastic Meccano, Dennis notes that a small hole drilled (see diagram) in the P77 Shouldered Spindle enables the firm attachment of cord, and has proved very useful to the younger members of his club when building cranes.

Secondly, he points out that most Meccano Engineers have a surplus of Spanners. "Each S M C member", writes Dennis,"has two Spanners in their work trays: one normal, and one flattened out — which they all find very useful. Even broken Spanners may be found to be useful in confined areas which are difficult to get into with an ordinary Spanner (see diagram)".



Still on the subject of Spanners, Dennis says that, "a cycle spoke adjuster spanner makes a useful key for the No 1 Clockwork Motor and Hornby Trains; if a narrow one is squashed in a vice it will act as a key for the 'Magic' Clockwork Motor!"

MAGNETIC TIP AND BIC SPRING

Writes C D McCarty of Napia, New Zealand: "I am sure that many modellers have become frustrated trying to fit Grub Screws into bosses and retrieving lost Nuts and Bolts from the depths of their models. These problems may be overcome by using a screwdriver with a magnetized tip.

For those who are prone to losing their Compression Springs or need more springs, an old *Bic* pen spring can be cut to a suitable length. These have a golden tinge and blend with the Meccano Colour scheme".

CLOCKWORK MOTOR PINION AND AEORPLANE PIVOT BOLT

From Niels Gottlob have come the following tips:

1. The small pinion on the driving shaft of a Clockwork Motor runs ideally with a 48-tooth Bevel Gear. The pinion is found with 12 or 13 teeth and in different lengths throughout the years. With careful positioning they serve very well indeed.
2. The Aeroplane Pivot Bolt [P50] from the Aircraft Constructor Outfits of the pre-war years is longer than the standard part, and it is just possible to fix

it to a Plate with a loose Pinion on it. The difference in length is only 1.5mm; I would like to see the standard part increased by 3 or 5mm, but the Long Threaded Pin is in many cases a possible substitute.

CLOCK CLUTCH SPRING AIDS AUTOMATIC GEARBOX

Michael Edwards of Worthing (previous of Watford) England has written to say that he feels that he has to continue the saga of the automatic gearbox that started with the article in *ME12* (1976 June-September), and has become popular recently.

"I know this is perhaps my pet subject, but I have taken Robin Schoolar's ideas a stage farther and have invented one which actually allows the model to go backwards provided it is on a flat surface.

"I enclose a diagram, the design making use of the Clock Kit Clutch Spring [Part 258] which is exactly like a Cord Achoring Spring but larger and more robust.

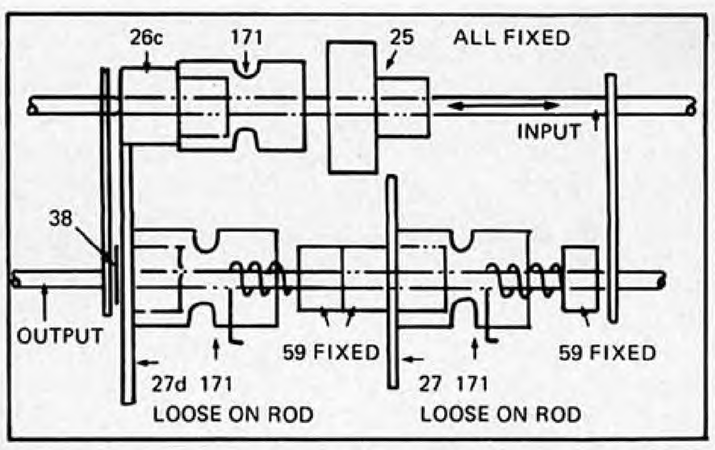
"The gearbox is a simple crash type with moving layshaft, but with no neutral, as both ratios become momentarily engaged and the lower one shifts on the 'ratchet' spring.

"The Springs have a habit of twisting along the rod, and this is prevented by Collars. The gearbox goes backwards because the Clutch Springs retain a degree of grip on the Rod when the drive is reversed, instead of slipping around freely on a normal type of ratchet.

"The gearbox change is of course driven by a standard type of centrifugal governor, such as shown in the previously mentioned article.

"A Socket Coupling is fixed to the free end of the governor arms, as in my Austin 7 [see *MM* 1971 January].

"This gearbox could easily be fixed to a



torque converter and could be expanded to 3 or 4 ratios using Argentine Gears."

Michael hopes to try it out in his next model. We will be interested to hear the results.

STORAGE PROBLEMS

The storage of Meccano Parts is a constant problem. Frank Beadle of Darlington, England has sent the following tip which might be of use to some of our readers:

"For years now", writes Frank, "I have stored Flexible Plates in the following manner. There are always some deflections and slight bends in any Plate which has been used, which cause storage problems.

"Pipe cleaners are one answer to this, and provide a convenient way to handle Plates even out of the box. The cleaner is put through the corresponding hole in each plate, with one twist to keep them intact.

"When building, simply undo the twist and lay the Plates in their piles on the table, whereupon individual plates can be easily obtained without spreading and mixing the sizes.

IMPROVEMENTS TO SPUR GEAR DIFFERENTIAL AND MODELPLAN ORRERY

Alan Partridge of Sutton Coldfield, England was very taken with the Spur Gear Differential shown in 'Among the Model-Builders' on page 16 of January's *MM*. Alan writes: "John Mercer's arrangement, which takes the drive across the centre, is a new one to me, and very elegant. It produces a symmetrical balanced device, without the duplication of the gear train shown in my arrangement on page 42 of that issue. I am sorry to say, however, that I cannot praise the details of his design. Built as shown, it binds badly. John seems to have a suspicion of this, for he says it may be necessary to double the Bush Wheel and add an extra one to the Gear Wheel. Are these pairs to be joined?

"Well if there is any length-wise joining to be done, much the best way is to join the Gear Wheel to the Bush Wheel, or just a Wheel Disc 24a, by 1½"x½"Double Angle Strips, or by 2"Screwed Rods, set in the holes at 90° to the plane of the drawing. The Axle Rods need only be 1½" long.

"Another point is that 27a is not a very suitable Gear, because the holes in its face are quite a lot bigger than 5/32" No27d (60 teeth) is alright, and so are 27b and 27c.

"If you want either of these large sizes of driver you can, as shown in the accompanying drawing, use the Gear Ring [Part 180] supported on a 3½" Strip. As drawn, the outer teeth can be driven by a ½"Pinion from either side, but the inner teeth cannot as the shaft would clash with the 1"Gear Wheels.

"But if the Gear Ring is set on the other side of the 3½"Strip, then the inner teeth can be driven from that side. Whatever the drive to the cage, though, the central crossover train of Pinions is very neat.

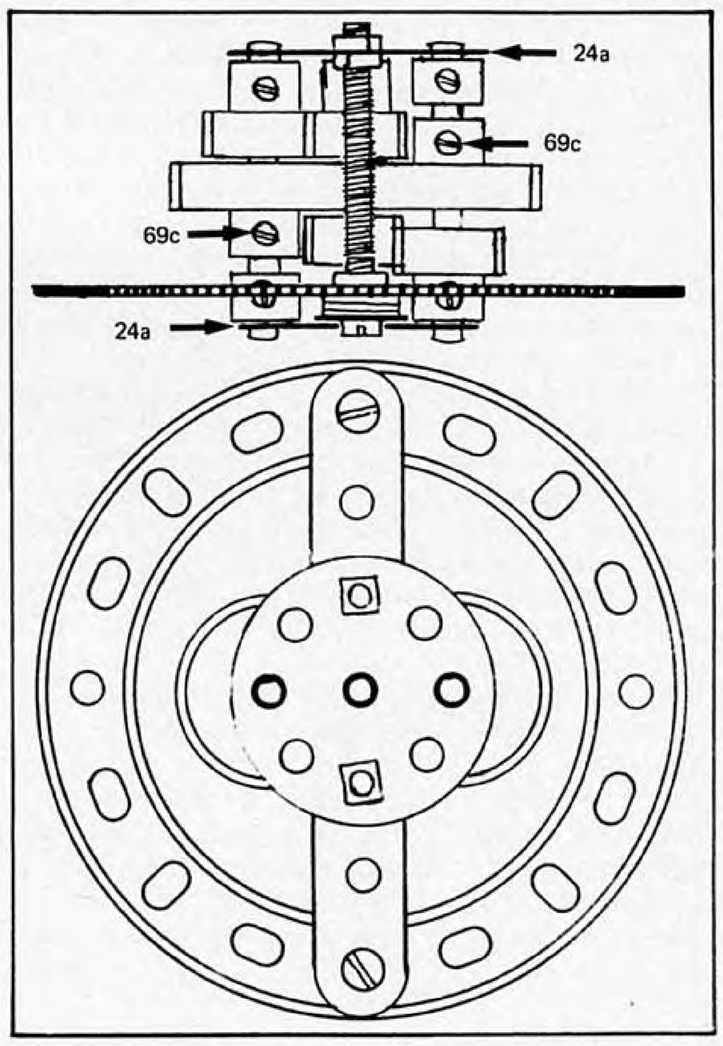
"I was also very interested to see on page 3 of the January *MM* a photo of Bert Love's Orrery in which he was, as you say, determined to simplify my *Modelplan 59*. Unfortunately he did not succeed in doing so. When Pat Briggs and I were invited to view it, we found one of the gear trains was seriously in error, with no obvious means of correcting it.

"When I last saw it, the model was at Pat's house waiting for inspiration. Even so, there are some highly ingenious features which are worth pointing out. The arm which carries the moon projects radially from a pair of Gear Rings.

"The lower of these is not acting as a gear, merely as a support; it runs in the grooves of four ½"Pulleys — it sounds horrible, but it works OK under light load. The upper one is driven by a ½"Pinion resting against its outer edge.

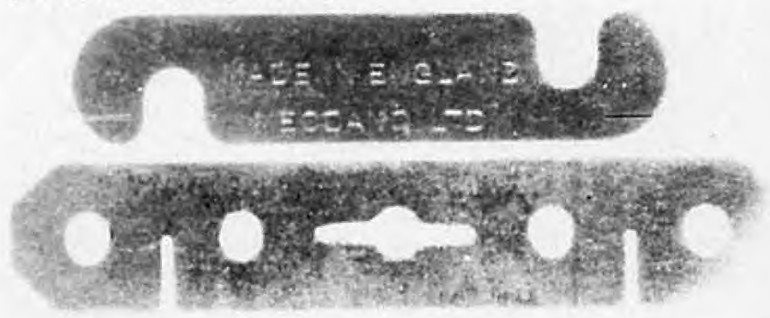
"Although the plane of the moon's orbit is rocking around, as shown in Fig.2 of my *Modelplan*, the ½"Pinion maintains contact with the Gear Ring by being mounted on a spring-loaded arm 2"long.

"The horizontal pivots for 1½"Strips and a Coupling which support it are seen nearly in line. A vertical drive shaft runs up between them, broken by a Universal Joint centred at the level of the pivots. There is some non-uniformity of the drive because this is a feature of a single universal joint, and a little more because of the tilting and rocking of the driven Gear Ring. However, it does provide a workable alternative to my fully-floating Gear Ring, in solving the problem of four concentric drives."



MYSTERY PARTS

R J Manson of London, England, has sent us *two* examples of the brass part illustrated here. The parts, which are clearly stamped in the centre:"Made in England" and '+' and '-' at the ends, are almost certainly stamped 'as a whole' out of sheet brass. The parts were found in a 1940 No7 Outfit. The set was otherwise reasonably as bought but had a few 1914 parts mixed with it.



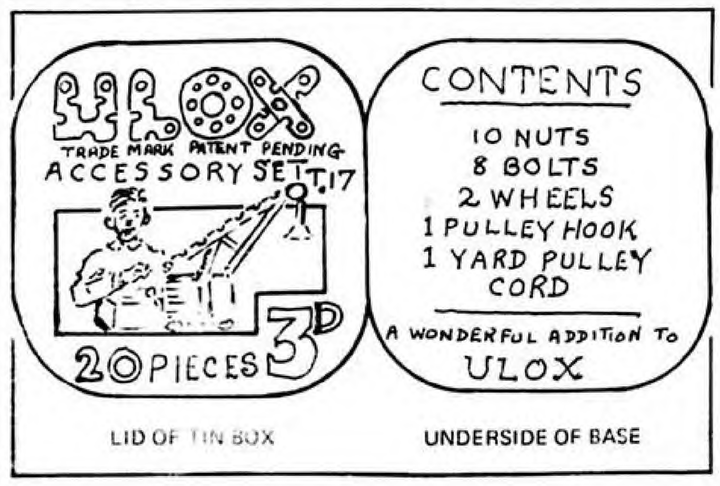
Malcolm Bell of Churchdown, Gloucester, England, has sent us a slotted and perforated strip, made of Nickel-Plated steel.

If any reader has any ideas as to the true nature of these parts which are reproduced here as near to actual size as is possible, they are requested to write to us.

In early issues of *Meccano Engineer*, we illustrated examples of some strange-shaped strips and asked for information as to their true indentity. A number of replies resulted, but none were able positively to identify the parts. However, we have now received information on a system that contained such parts as standard.

The system was called ULOX, and Betty Henderson of Ayr, Scotland, has sent us some brief details.

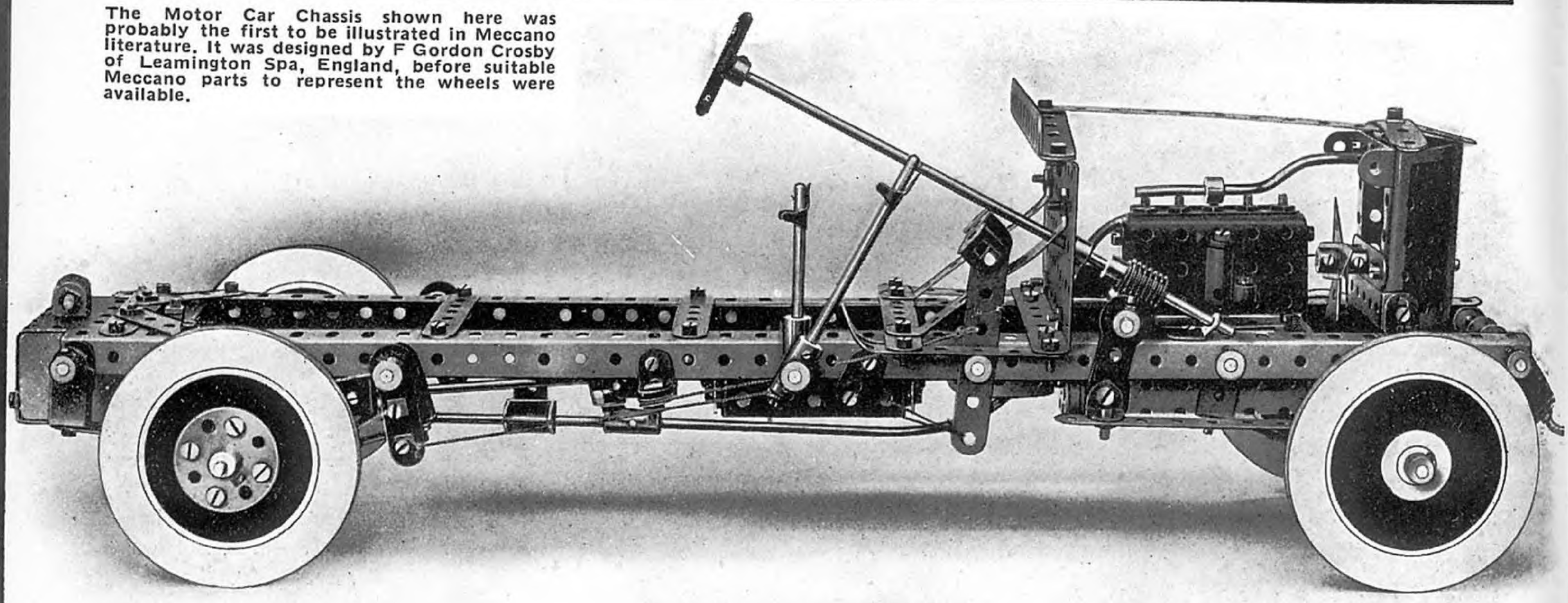
About 30 years ago her mother purchased a second-hand Meccano set for the family; in it was a small tin box of ULOX accessory parts. Betty's drawing here shows the design of the box.



MECCANO AND THE MOTOR-CAR

By William Boddy, Editor of 'Motor Sport'

The Motor Car Chassis shown here was probably the first to be illustrated in Meccano literature. It was designed by F Gordon Crosby of Leamington Spa, England, before suitable Meccano parts to represent the wheels were available.



It can never be said that the Meccano system has neglected the motor-car. Very early on we had the Meccano Chassis, electrically-powered, correctly repro—ducing the mechanical complexities of a 1920s luxury-car, albeit of abnormally long wheelbase. Since then this basic chassis has been moderized several times along the years. Now that there is less objection to using other materials with Meccano parts, I commend the building of models of the older racing cars, to which Meccano is so well suited. Years ago D M Dent commenced a series of basically Meccano racing cars, but bodied in sheet metal and using specially-made wire wheels. His first, in 1924, was of the GN *Kim*, and later he made models of Frazer Nash cars — of the kind he raced at Brooklands — with working chain-and-dog transmission, etc.

The introduction of miniature Dunlop tyres into the Meccano system was a gift to car modellers, who also have a realistic Meccano steering wheel. I was told by Dunlop in 1952, that the tyres that fit the 3" Pulley represent 3.50x19 or 819x 120 vitage era tyres in real life, depending on which scale you adopt, 1:6 or 1:8. The former were used on many 1920s small-cars, the latter on the big powerful chassis and the giant racing cars of long ago. They positively invite reproductions of famous racing cars, of the kind illustrated in my book on Brooklands history.

It is not always easy to make realistic radiators, dumb-irons, road springs etc from Meccano. The point here is that on many of the exciting big racers of the pre-war period the chassis-ends or dumb-irons and the axles were faired-in, the radiators cowled over. If sheet tin or aluminium is used in conjunction with your Meccano, to fair-in these parts, realism is easy to achieve. What more exciting cars are there to model than the great, slim Brooklands' single-seaters with their long tails, of the pre-1914 or 1920-30 period?

A common fault is to make the wheel-base too long. Invariably, in the real cars, the wheelbase, ie the distance between front and back axles, was rather less than three times the tyre diameter. Thus, using 4"Meccano tyres, a wheelbase of around 14", at most 16" would be correct. Mark you, with the radiator cowl protruding, and a decently long tail, your model could be getting on for 760mm in overall length. The pre-1914 Brooklands' cars used horrifyingly thin-section high-pressure tyres, so those plain rubber tyres which fit the 3"Meccano Pulleys would be quite appropriate to such Meccano racing cars. They are as fine period pieces as models of early locomotives and aeroplanes, and the real cars of this age were dramatically fast, a 12-cylinder Sunbeam having lapped Brooklands Track at 195.2Km/h by 1913. So I am surprised so few have been modelled; if you do make one, nicely cowled-in with sheet tin please let *Motor Sport* know!

Meccano lends itself to proper Ackermann steering-gear, although the various joints are rather out-of-scale. It is a pity no-one makes a one-piece steering king-pin, pivot, and steering arm we could use. They were made for model cars about 20 years ago — does anyone remember? — but the size was just too small for Meccano hubs and collars, etc. There is a way round this! The leading Grand Prix and record-breaking cars of the mid-1920s sometimes had underslung chassis, being very low built, and bodies enclosing all the mechanical units, which is where you hide your steering-pivots, etc while remaining fully authentic! Have a look at the 1926 GP Talbot, the Thomas Special, etc, in the aforesaid book and you will see what I mean.

Again, a simple gearbox can suffice on a 1920s racer, without departing from the genuine, because the monster Wolseley-Viper had only two forward speeds (there were no corners or hills on Brooklands, and its 11½-litre aeroplane engine was very powerful!).

Even better, in 1927 there was a big 8-litre French Voisin that took the coveted hour record at a rousing 206.51Km/h and it used a direct drive, both its axles were underslung, and its radiator and chassis were completely cowled-in. Just the kind of job for a Meccano racer, if you are prepared to add sheet metal, and piping for the exhaust etc.

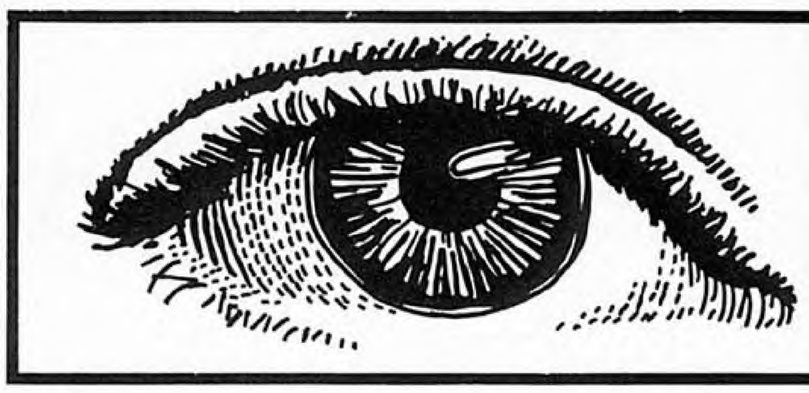
Long distance record breaking was all the rage then, and you might consider a big Meccano racer set to run 'round the pole', using an Electric Motor with current taken to it along the tethering cable. I do not see why such a model should not lap for 12 or even 24 hours at 16Km/h — covering 193 or 386 Km — but you might need several pit-stops to tighten its screws and change worn tyres! Money for a local charity might be raised with a guess at the distance the car would cover in a given time, and by raffling the doll-driver afterwards. If the idea of a doll on board, or the car circulating with an empty cockpit offends you, there were record-cars with enclosed cockpits in those days, Renault, Hotchkiss, etc. If your car was to run for 24 hours more or less non-stop, it would be possible to rig up a headlamp to light its way after dark...

By the way, many of these big old cars had disc wheels; so here again, they lend themselves to a realistic model, whereas wire wheels are not possible in Meccano.

Getting away from racing cars, you might think it worth making models of ordinary cars. Meccano lends itself admirably to reproducing the various transmission systems, such as friction-drive, chain, or belt drive, and even the Constantinsco torque converter, which was described in the *Meccano Magazine* for April and July 1924, April/May 1927, January 1942, and December 1936.

From time to time in the old days the motor magazines would publish readers' photographs of their efforts at model-car building, a Rolls-Royce tourer, a free-lance racer, and so on. In most cases, the construction was mainly of Meccano, embellished by strip brass for the springs, with bodies made from wood, cardboard, or metal and lamps fitted with tiny bulbs, etc. I would like to think that such things are still made.

Finally, steam and electric cars might well be modelled. Both have in their time held the absolute speed-record, a Stanley steamer at 195.5Km/h in 1906 and a Jenatzy electric car at 106Km/h in 1899; and what about those electric-broughams that the ladies favoured as city transport here and in America? Good Modelling.



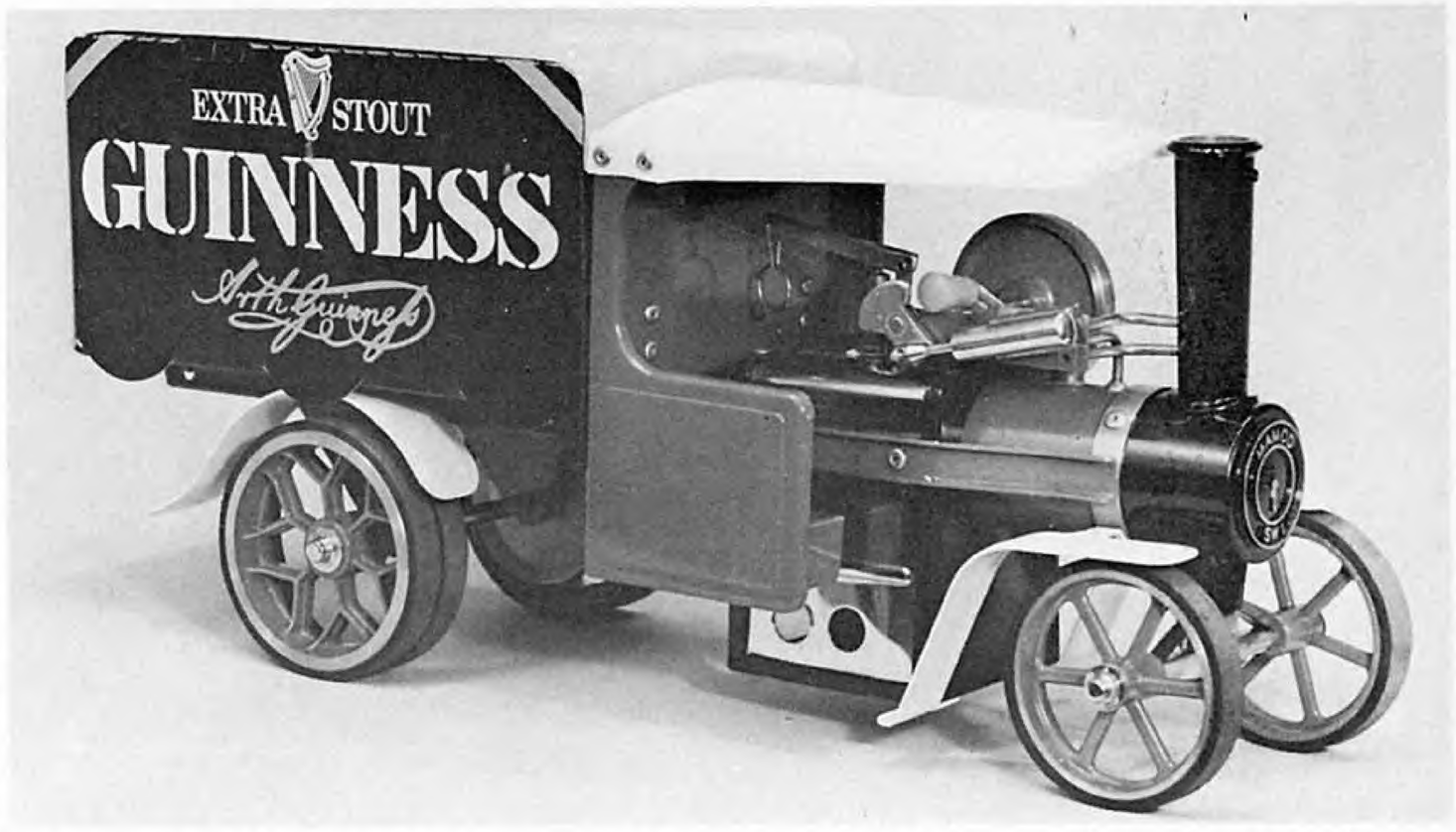
In View

AN *IN VIEW* SPECIAL REPORT

MAMOD STEAM ROADSTER & MAMOD STEAM WAGON SW1

Manufacturers: Malins (Engineers) Limited, Thorns Works, 206 Thorns Road, Brierley Hill, West Midlands, DY5 2JZ. England.

Tested and Reviewed by: **Roy Hallsworth**



The Mamod Steam Roadster and Mamod Steam wagon SW1 are very well-engineered high quality products. They defy all those who say things are not made as well today as they used to be. Models of this kind were never better made than these heavy-gauge materials. At a price of £21.75 each they are well worth every penny and more. And they are all-British.

The test models were taken from their boxes and, with the minimum of preliminaries, given a steaming run. One of the first essential steps for this is correct lubrication. The manufacturers recommend a universally available motor car engine oil of SAE 20/30 or similar. This is a good oil and while the maxim — *'any oil is better than no oil'* holds good, there is no doubt that an oil specially compounded for steam engines gives better results. Stuart Turner Limited, of Henley-on-Thames, England, market a steam engine cylinder oil for superheated steam up to 827 kN/m^2 [120 psi] for under 50p per tin. This oil was used for the models on test. An oil of this type will stay where it is put and continue to lubricate long after inferior oils and those compounded for different applications have been washed away.

The steam power plant, with detail variations, is common to all Mamod models including the Meccano Steam Engine, which Malins make for Meccano Limited. The boiler is filled, preferably with pre-heated distilled water, to the level of the overflow plug. The burner is then charged with methylated spirit (now superseded by solid fuel), ingnited, and inserted into its place beneath the boiler.

The performance of each model tested is as follows:

STEAM ROADSTER

Running time 15 minutes on one filling of the boiler and spirit lamp. Distance covered: 230m, giving a speed of 15.25m per minute. Equal performance in both forward and reverse running.

A steam engine should run with a fair degree of silence, but this one has a very distinct 'knock' from an oversize big end bearing. Some may consider this gives added realism to a model of an 'old' car.

A resonable reserve of water remains in the boiler after the burner fuel has exhausted if filled as recommended. The burner is not as difficult to insert as first appears. It should be even easier with solid fuel, but outdoor running is a must.

STEAM WAGON SW1

Running time 12 minutes on one filling of the boiler and spirit lamp. Although the cylinder and piston are identical to those of the Steam Roadster, the 'block' to which the cylinder is povoted is a formed strip of relatively thin brass. That of the Roadster, like the Meccano Steam Engine, is a solid block of precisely machined brass a good 3mm thick.

Due to poor geometry of the inlet ports in relation to the reciprocating arc of the cylinder, the performance of the Steam Wagon is better in reverse than in forward running. In reverse, steam is admitted to the cylinder at just the right point in the piston travel. Whereas in forward motion the piston is more that a quarter of the way down its stroke before the inlet port is open to admit steam, with correspondingly reduced power. The cut-off also occurs out-of-timing.

This I find disappointing, and reversing the driving bands if not an acceptable engineering solution. A block of a quality as precise as that of the Steam Roadster engine is what is required here.

Adhesion is another problem with the unshod wheels of the Steam Wagon. Ideal tyres are however available in Hotpoint and Goblin vacuum cleaner belts[1] and these can be seen fitted to the model shown which also sports a non-standard 'Guinness' bodywork.

Both these models offer excellent value and working interest, with potential development for variations. It is hoped to illustrate some of these developments in a later issue.

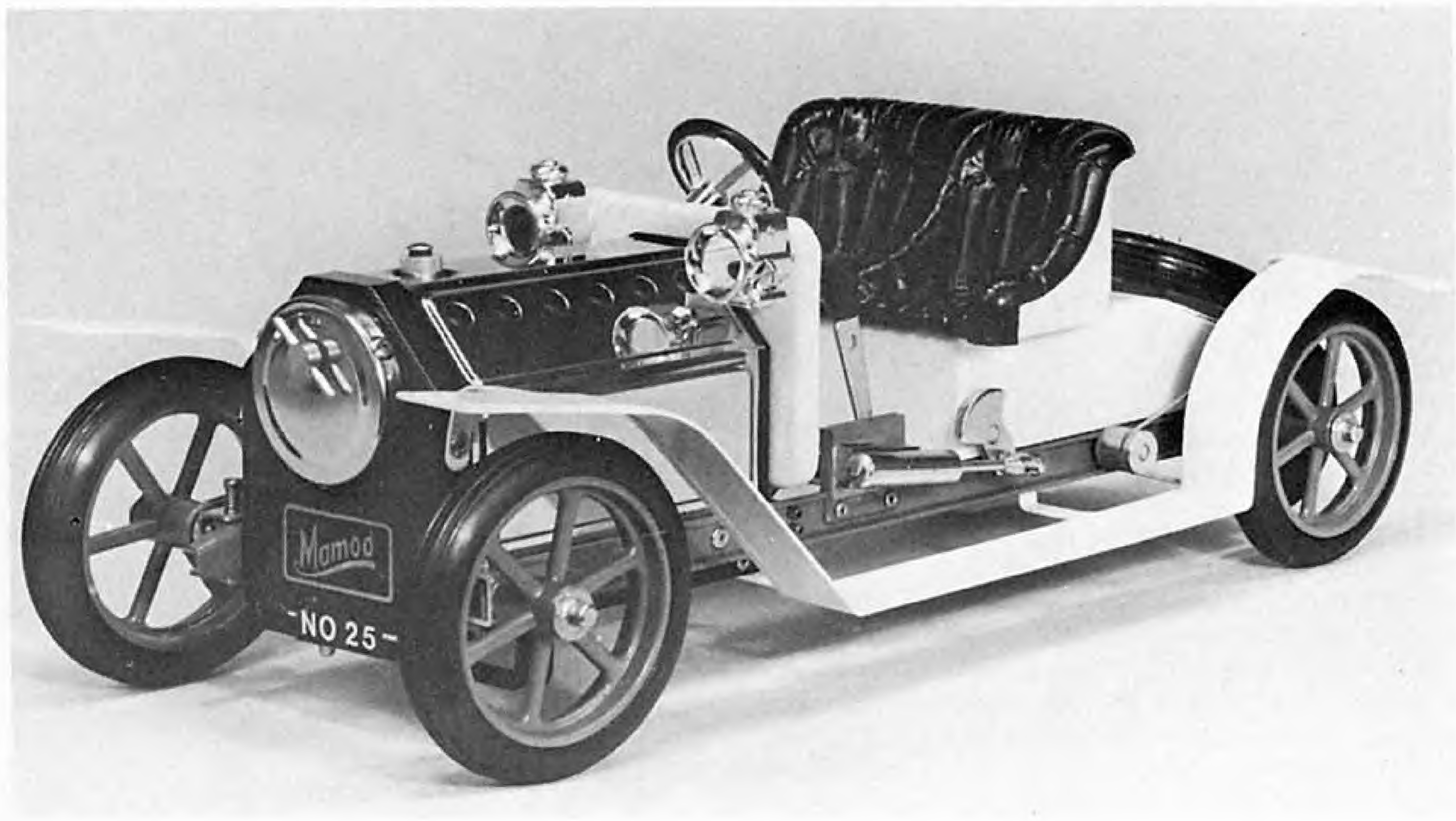
Roy Hallsworth

1 The model in the photograph is fitted with four VCB 6 Goblin Belts to the rear and two VCB 9 Hotpoint belts to the front wheels.

VCB 6 belts could be fitted to all wheels, but VCB 9 would only fit the smaller front wheels.

Manufacturers are: Wellco Electric Ltd, Wilbury Way, Hitchin, Herts, SG4 0TZ, England.

Available fron Electrical shops and service stockists.



THE GOLDEN AGE OF THE RAILWAY POSTER

By J T Shackleton

Published by NEW ENGLISH LIBRARY

£5.95

LONDON TRANSPORT POSTERS

By Michael F Levey

Published by PHAIDON/LONDON TRANSPORT

£3.50

It is sometimes difficult to remember that railway posters used to to be, and ought still to be, appealing. These days, when notices so often begin 'We regret...' or 'Owing to...' or some similar bureaucratic claptrap we have almost forgotten those glamorous, happy and proud proclamations that were the colourful background to our travelling, inviting us to Carlisle the Gateway to Scotland by L M S, or Minehead the Gateway to Exmoor by G W R.



If we are old enough we might even remember that the Lancashire and Yorkshire was 'The Business Line', that the *Southern Belle* offered 'One hour of luxurious travel'; and of course, we all know that Skegness is so bracing by courtesy of the G N R and later L N E R.

Well, here they all are and many more for our enjoyment again in a lovely book '*The Golden Age of the Railway Poster*' by J T Shackleton. A large format, well produced book in which everything that can be in colour is so — even the earlier typographic posters.

The author offers something for everyone; you don't have to be a railway 'nut' to enjoy this book because Mr Shackleton has an eye to history, a sound knowledge of printing, and aesthetic judgement, and he writes well, so the result is a balanced product.

He leads in from the very earliest notices looking like 18th Century broad-sheets with the characteristic long '∫', through the ponderous Victorian playbill era to the advent of the illustrated poster in full colour; then on to the extrovert, competitive and nostalgic designs of the 1920s and 1930s, and finally to the Southern Railway in 1946.

The sources are not entirely British, for there are American, Canadian, and especially French posters together with a sprinkling of photographs of stations to set the comtemporary scene.

Suggesting that railway posters were not always of the highest artistic content, Mr Shackleton makes the point that the main line companies were unwilling to spend the considerable sums which artists like Mucha (the great Art Nouveau designer) were able to command (Hassall got £12 for his 'Skegness'), and in turning to our second book for review — '*London Transport Posters*' — we see exactly what he means.

London Transport has for years set such high standards of design in every-thing they make that they have become the admiration of the world, and their posters are no exception. What is so striking as one opens this book is the excellence of the designs with which we are confronted.

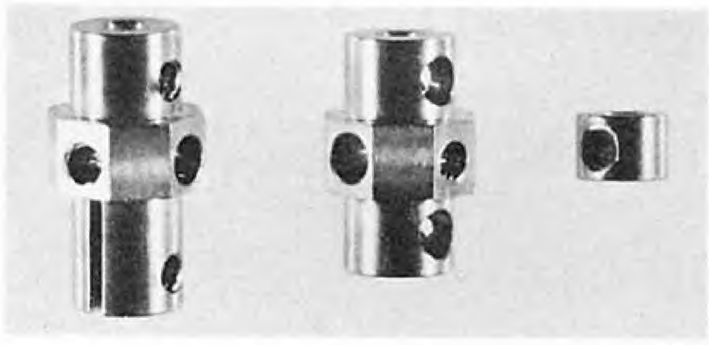
It was Frank Pick — the presiding genius of the L T P B — who gave the undertaking its 'house-style', and who was able to persuade (and pay) artists of vision such as McKnight Kauffer, Eric Gill, Henry Moore and many others to set their mark on the capital's transport system.

So here, for 80 pages, you can see posters which are whimsical, dramtic, informative, powerful, and even patriotic, by turns; all beautifully reproduced and expressing a tradition which continues to this day.

Both books are throughly recom-mended. I hope you will enjoy them; I did.

Alf Reeve.





NEW REPLICA PARTS

Part P52 Aeroplane Collar.

As its name suggests, this part was originally supplied with the Meccano Aeroplane Constructor Outfits marketed between October 1931 and June 1941.

Whilst most of the Aeroplane parts had very little real use in conventional Meccano modelling, the Aeroplane collar, being smaller than standard part 59 definitely had a separate model-building use; it was even included in the largest standard outfits during 1939 and 1940, having been in the standard parts lists during 1938.

In last January's *MM*, I had the pleasure of reviewing a replica Spring Buffer manufactured by the Welling-borough and District Meccano Club and I am now equally pleased to note that a replica Aeroplane Collar is available from the same source.

The quality of the production is excellent, which is as expected from this source. The part is turned in brass to 5.5mm length (standard part 59 is 6mm long) and 8mm in diameter compared with part 59's 9.5mm. This last difference may not sound a great deal, but in a tight spot, every half millimeter counts!

The original part can be found tapped with a 6BA thread or the standard 5/32"BSW; Wellingborough have been sensible and opted for the standard thread, so our Grubscrews will fit!

Thoroughly recommended at 13p each.

Part 63a Octagonal Coupling, and Part 63b Octagonal Strip Coupling

From the same manufacturer, I am in receipt of samples of replicas of the Octagonal Couplings introduced by Meccano Ltd in 1919. The Octagonal Strip Coupling has been obsolete since 1925, the 63a since 1940.

As can be seen from the illustrations, the parts are identical to their standard counterparts, except for a raised octagonal portion (½"across the flats) in the centre of their lengths. This raised portion allows the Coupling to be firmly bolted to Strips or Plates, providing a substantial axle bearing centred ½" from the Strip or Plate. Another possibility is the parallel fixing of Strips or Plates to an Axle Rod.

The replicas are, of course, in brass, and are accurately shaped, drilled, and tapped. They represent excellent value at 65p each.

120a Spring Buffer

Further to my review of this part in January's *MM*, I now have to hand an alternative version of Wellingborough & District M C's 120a. This time the centre section is in turned aluminium. This is an economic measure, designed to provide a non-corrosive section at a lower price than the nickel-plated article. The revised prices (Brass sleeve with polished steel or aluminium centre section at 55p — brass sleeve with nickel-plated centre section at 65p) are still very reasonable for 'short-run' parts, and although the thread on the aluminium centre section will not stand much rough treatment, the finish of this type bears a very close resemblance to the original Liverpool product.

I understand that, Meccano Ltd willing, more replicas are planned from this source — I can't wait!

Available ONLY from: M J Burgess, Wellingborough & District Meccano Club, 56 Park Road, Kettering, Northants, NN16 9LL, England.

MODELS OF THE MONTH

Published by The Meccanoman's Club *The Models of the Month* was a series of articles published in *MM* between March 1956 and January 1962. In each case, the illustrations of the model appeared in the Magazine, but readers had to send to Binns Road for the (duplicated) instructions.

Now, the Meccanoman's Club have re-issued the complete series of these models —pictures and (re-typed) text together — in photocopy form.

As photocopies go, these are very good, but as the original *MM* illustrations were somewhat substandard, this is of course reflected in the photocopies, and I feel that would-be builders may have difficulty defining parts within the 'bowels' of the models if they do not have the original magazines to hand.

Some leaflets are better than others in this respect however, and as the range of models represented is very wide, this could prove to be a useful source of extra model-building ideas.

It could be said that the advanced modeller will have no difficulty in building from these pictures, but I don't think that such a modeller will be that interested in this series. For the less-advanced and those without the original magazines, they could prove a bit of a challenge, and modellers who don't want that sort of challenge may wish that these leaflets were better presented.

Mike Nicholls

Availablility and prices: see page 50.

Following our review of TINPLATE DESIGN REVIVAL'S Pickfords 0-gauge wagon in these columns in January's issue, we have had correspondence with TDR and, although we do not wish to withdraw our reviewer's comments, we felt that it would be only fair to allow TDR to put forward their own point of view.

In fairness to our reviewer however, we must point out that, in their advertising literature, TDR described their wagons as being "....manufactured to the highest pre-war standards and specifications. Based upon the models of the period and designed to the same exacting requirements....".

The letter below was received in response to an invitation from MM to TDR.

Sir

The provocative criticism of Tinplate Design Revivals 0-Gauge Private Owner van Pickfords in your January edition requires considerable clarification. Had you contacted us to inform us that you intended 'reviewing' one of our vans we would gladly have contributed as much information as possible to assist in the production of an interesting and valuable article which would have made far more informative reading than the superficial observations of your reviewer.[1] Under the circumstances, however, it is now necessary for me to 'straighten the records'.

You begin by informing us of the delights of Hornby trains over the last forty years and then state that the TDR van does not meet the same specification. Firstly I should like to make it clear that it was never intended that we should enter the imitation or replica business and that the design a TDR van is based upon the style of tinplate closed vans as produced by a variety of manufacturers in the 'Thirties'. Hornby, being the best known and most prolific English manufacturer, was naturally looked upon as a major source of reference but features of Bassett-Lowke, Bing, Carette, Marklin, Ives, Lionel, American Flyer and Brimtoy, to name but a few, were also considered.

In the same opening paragraphs you mention, again in connexion with Hornby, 'robust construction' and 'naive vigor' of the graphic work. As far as construction is concerned your readers might be interested to learn that TDR tinplate is at least half as thick again as anything used by Hornby and is plated *after* all the shapes are cut out thus ensuring that even the edges are plated and thus protected from rust. Manufacturers of the 'Thirties' invariably pressed into tinplated strip resulting in raw steel edges and a breaking of the plating where pressed lines occured. This accounts for the lines of rust found on most early pressed vans, usually on the inside where it is not easily seen, and on the corners. The graphic work of the Pickfords van is taken directly from photographs of 1930s vehicles as aupplied to us by pickfords and the colours are based upon information supplied by them and subsequently sent to ICI for researching. ICI were able to trace the exact colour of Pickfords vehicles in 1935, send samples and offer further advice. An interesting fact which emerged with our own experiments at this stage was that a colour also needs to be scaled fown in order to achieve the desired result. Whilst 23m^2 of Royal Blue looks blue 48mm^2 especially when topped with a white roof, looks black and it was necessary to lighten the colour slightly to obtain a representative colour. As the nearest Hornby ever got to 'naive vigor' was the Colmans Mustard van, itself considerably less vigorous that the Carette version, your reviewers comments here would appear to be both untrue and superfluous.

The references to Hornby continue with chassis comparisons stating that the TDR chassis closely follows the 'standard Hornby product'. I know of over twenty different Hornby four-wheel chassis and it would have helped if your reviewer had stated exactly which Hornby chassis he was referring to. He mentions a curious 'edgy' look to the pressing. Had he contacted us before committing himself he would have been told that it is not a pressing at all but is an acid etching which is later folded and has the advantage of giving a clear, 'edgy' detail as disinct from the more rounded and equivocal impressions made by press tooling. It would seem pertinent at this stage to mention that Hornby, Bing, Bassett-Lowke etc were producing items by the hundred thousand and aiming at a mass, international market. It was therefore justifiable to invest hundreds of thousands of pounds in tooling and machinery to manufacture goods which sold, by the thousand, for a few shillings or less. If this market still existed the same firms would still be producing the goods. It does not and the only market is that of collectors and enthusiasts who, when narrowed down to 0-Gauge tinplate, amount to a very few thousand even on a World Wide basis. In order to create a model which continues in the spirit of these manufacturers, at a reasonable price, for a limited market it is necessary to utilize other methods of manufacture which do not involve a capital investment which cannot be justified. Hence, from the outset, as collectors/enthusiasts producing for collectors/enthusiasts it was blatently clear that any imitation or replica was out of the question and only a model in the style of the models of the 'Thirties' could be considered reasonable in comparison with the prices asked for original examples. We did get a costing for a press tooled version an d they would have necessitated a selling price in excess of £80 each and at least 40000 would have had to be produced to cover the cost of tooling.

Returning to the review criticism is made of the joint between the horizontal bar and the axle-guard/brake-hanger. We do not deny this is fine but as it serves no function other than that of appearance and is in no way a contributing factor regarding the strength of the chassis the thickness of the joint is of no importance. In fact as your reviewer is so intent on comparing the TDR chassis with a Hornby Chassis he might like to learn that the first two general four wheel wagon chassis of Hornby had no bars or 'brake hanger' and models of 55 years vintage show no signs of collapsing as a result. Tags inside are over large? Over large to what? Is there an international standard size for tabs inside tinplate 0-Gauge vans? Tabs on the corners imperfectly pressed down. Correct. Your reviewer has noticed a genuine fault and this has been rectified. It was caused by the 'last' used in supporting the inside of the body during bending of the tabs being fractionally oversize and this has been altered. He is quite correct in stating that the corner irons are separate pices soldered on. It was felt that as this is a vulnerable area additional strength was needed. The claim that the angle iron was crooked could be justifiable criticism on that particular van. Had the purchaser returned it to us pointing this out we would happily have exchanged it for another. As this was our first model it was inevitable that one or two detailed points passed unobserved during the process that involved several hundred individual operations. Additionally the aim of the project was to create an 0-Gauge tinplate PO van at a reasonable price and any attempt to reject everything that was not up to the sort of standards your reviewer requires would have quadrupled the cost. Naturally we would like everything to be perfect and we are rapidly improving on the first models, mainly as a result of constructive comments made by our customers. I do not recollect ever having seen a prototype of Hornby's first models on standard gauge. On the 'noticable flaw' in the wheel flange casting I have yet to discover what your reviewer is referring to. I cannot find a 'noticable flaw' and as some 1 200 have been sold without any comments on this feature I am at a loss to know at what he is complaining.

Couplings. Our quotes for press tools strong enough to stamp out and twist a Hornby type auto coupling in steel ranged from £60 for a 'back-street' job to £400 for a professional. Add to this the cost of steel and production and one soon arrives at a figure which, on a limited number of couplings, is totally out of proportion with the rest of the van. The white metal coupling looks satisfactory and operates perfectly. We are, after all, selling to mature collectors who, we assume, do not treat their collections in the same way as the young lad of the 'Thirties' did at Christmas. We have, however, received two letters, one from France and one from Australia offering the names of manufacturers of Hornby type steel auto couplings and are currently negotiating with both for either the tools or manufacture.

The lamp was a present. A giveaway. Free. Each one cost us a few pence to have made and a lot of time to paint. We decided to give one away free with each van as a token of thanks to all who had supported the project in the early, more difficult, stages. They will not stay on the lamp bracket and neither did Hornby lamps. A deeper slot is only possible with an expensive steel mould which again could not be justified costwise. Most people simply leave them lying about on stations or alongside watchman's huts. They look very effective. If it is desired to attach them to locomotives or rolling stock the same method as used with Hornby can be applied which it to stick them on with Araldite. But as mentioned they were free and one does not expect criticism of gifts.

With the roof your reviewer did not look as closely as he claims to have done. True, it is of nearly double thinckness, as is the rest of the van, but does he really believe it consists of two layers with one having a slot stamped out? The rain strip closely follows the philosophy of Hornby in being a visual interpretation of a strip along a roof of a protype van. It could be pressed up, etched out or simply painted on. We are not producing scale models nor do we anticipate them being run outdoors when it is raining. We received a lot of comments on the roof, mostly favourable. In the design stage it was decided that as the vans looked so similar to Hornby vans it was necessary to introduce a subtle difference to avoid confusion. The rain strip provided the ideal opportunity and now serves as a recognisable trade mark. But is it really extraordinary?

The paint is not thin but two coats of standard thickness on a primer coat. We did experience problems with the first Pickfords vans when it became apparent that the etch-primer was not all it was supposed to be. Unfortunately this did not come to light until we were informed of the fact after the vans had been despatched. As soon as it was known the primer was changed and we have experienced no problems since.

The doors, whether they are too tight or ill fitting or, as shown in your photograph, obviously distorted, are most likely the victims of damage in transit again a simple matter that could have been rectified by the purchaser or by returning to us.

On the first few Pickfords the transfers were applied before the doors were fitted to the bodies on the assumption that if every thing was in the correct place they would line up reasonably well. This, unfortunately, did not occur and we were faced with the decision of sending out the first vans with slight alignment discrepancies in the transfers or stripping all the doors, fitting them and, after repainting, applying the transfers again. As over one hundred people had been waiting since the end of July, without complaint, we decided to send them out. By then it was December, the result of a multitude of problems which caused delay after delay. It should be noted at this point that the understanding and loyalty of these people who, in the main, had paid for a van they expected to arrive in August but did not receive until some four months later was more than a tribute to the integrity of members of the HRCA, GOG and other collectors circles and we shall not forget it.

All this and more your reviewer says can be yours for £8.35. Sorry Mr Reeve, it cannot. We have sold too many and the Customs and Excise people have asked for VAT. The cost of each van £8.08 and we are all feeling the effects of putting in over twenty hours per week to produce an Gauge 0 tinplate Private Owner van for serious collectors. If you think you can do a better job at the same price please start immediately and I will have of each. As far as having cash left over from your proposed efforts the following is worthy of consideration.

A Hornby van without any rust, of the pre-war variety, which does not require stripping down completely and has die-cast wheels would cost you a minimum of £4. Aerosol paints, three off, would cost £2. Letraset is £1.50 per sheet and three different sheets are needed, amounts to at least 50p (assuming you would utilize the remainder of the sheet), an additional aerosol of primer would be 70p. Time involved at a minimum of £1 per hour would amount to at least £1.50 (always assuming you have everything ready and do not have to dash down to your local garage or hardware shop). Add to this the painting of the wheels and the services of a professional designer who has carried out all the necessary research, requested permission from the firm involved and carried out all the alterations requested after submission of an example to all interested bodies you arrive at a figure not far short of £10. If we reduce the price of the Hornby van to £1.50 or so then you are in business. If you have a supply of pre-war Hornby vans, rust free, complete and with die cast wheels at £1.50 each please send me a dozen as I have obviously failed to find this source.

It is also worth pointing out that it is not the easiest of tasks to get Letraset to stick on non-existent surfaces and any attempts to secure adhesion in the 'grooves' which represent planking on the side of PO vans usually ends in disaster. Even if success was achieved an additional varnish coat would be needed to ensure that the Letraset did not come off at the first handling.

In conclusion I would like to thank all Meccano enthusiasts who are not really interested in railways for getting this far but, by way of an explanation, it was not Tinplate Design Revivals who introduced the subject to these columns.

Alan Taylor, BA(Hons) (Art & Design), ATC, Tinplate Design Revivals 11 Boscombe Road, Southend on Sea, Essex, England.

1 We would of course consider for publication any material that Mr Taylor (or any other manufacturer) would care to send; we found Mr Taylor's explanation of the difficulties encountered in tinplate production fascinating, and would welcome other material of this kind.

BALL STYPEN
By CUMBERLAND GRAPHICS

Bearwood Road, Warley, West Midlands, B6G 4HW, England **Price 29p**

Our last item might seem a little outré at first glance, as it deals with a new type of ball point pen, but the infromation may be of interest to Meccanograph builders — and anyone who uses pens!

A short time ago, a Japanese company introduced a new kind of ball pen that writes like a fountain pen with a much more fluid ink than the viscous type used in conventional ball pens.

Although the new pen was far and away the best thing that had happened to the ball pen since the invention of the ball, the heavy art deco-ish barrel leaves somthing to be desired.

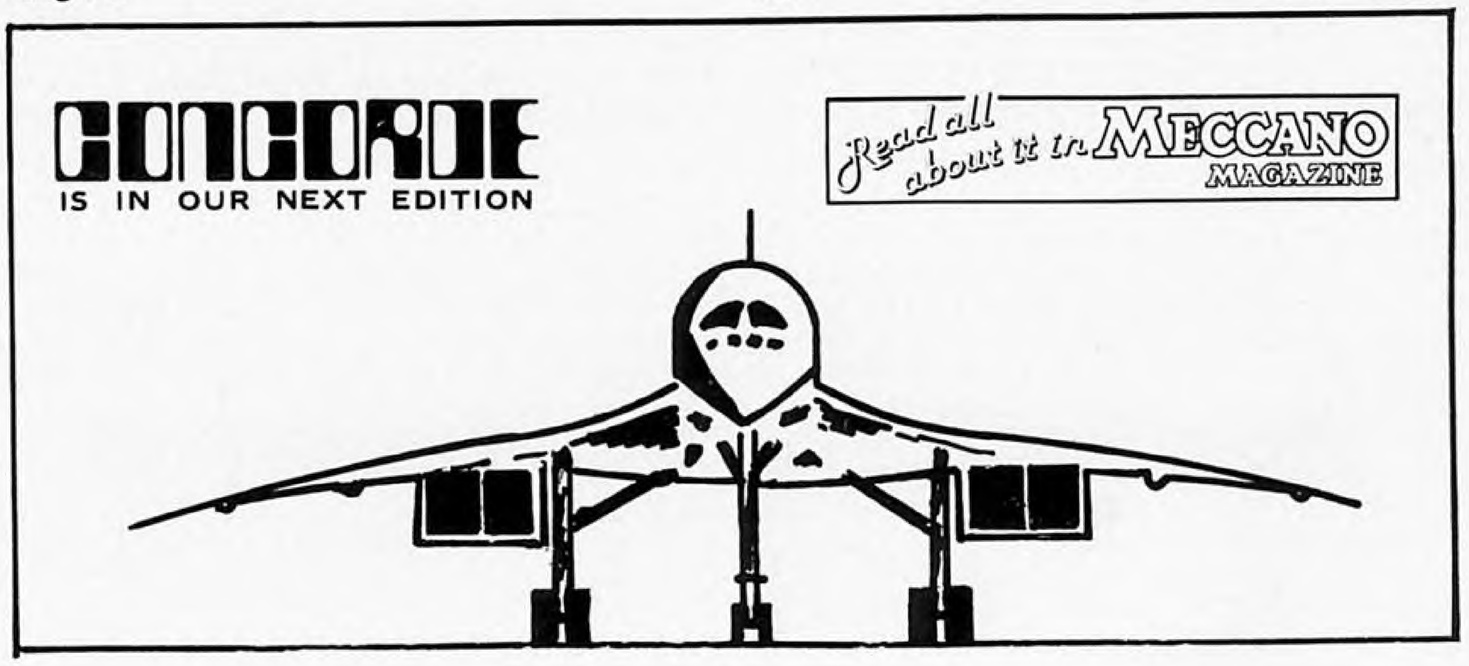
Now Cumberland Graphics of Warley, England have introduced what can only be described as a vast improvement in this new generation of ball pens.

The *Ball Stypen*, in black, red, green, or blue, has a very comfortable barrel that is moulded in plastic that matches the colour of the ink: this enables you to tell what colour the pen is before you remove it from your pocket — a simple point you may think, but one that was missing from the Japanese product. Cumberland's Stypen also has a reassuring 'click' when the cap is replaced, so it's goodbye to ink-stained clothes and fingers.

Before I get carried away and make you think that I have shares in Cumberland, let me just say that I now use Stypens to the exclusion of all others, and editors do a *lot* of writing, so my pen has to behave like an industrial tool.

I just thought I ought to pass on the tip.

Mike Nicholls.



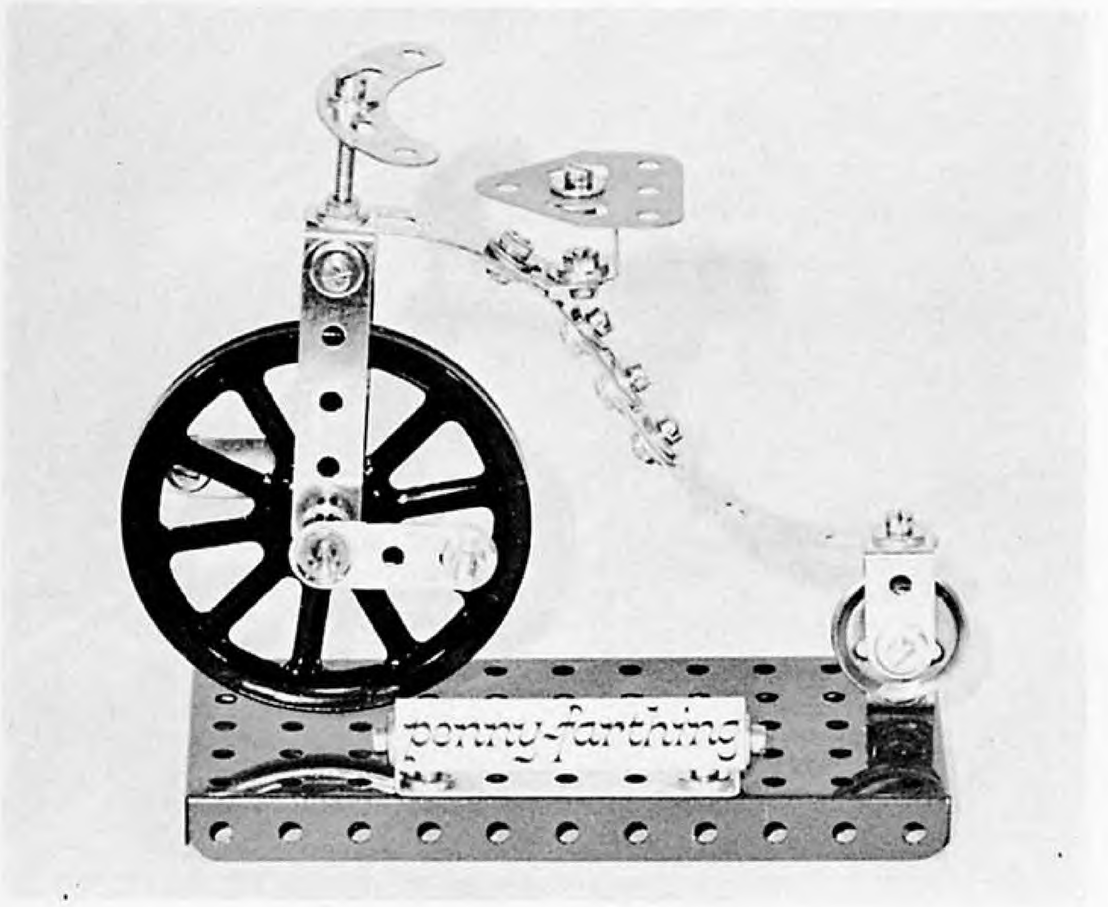
Spanner

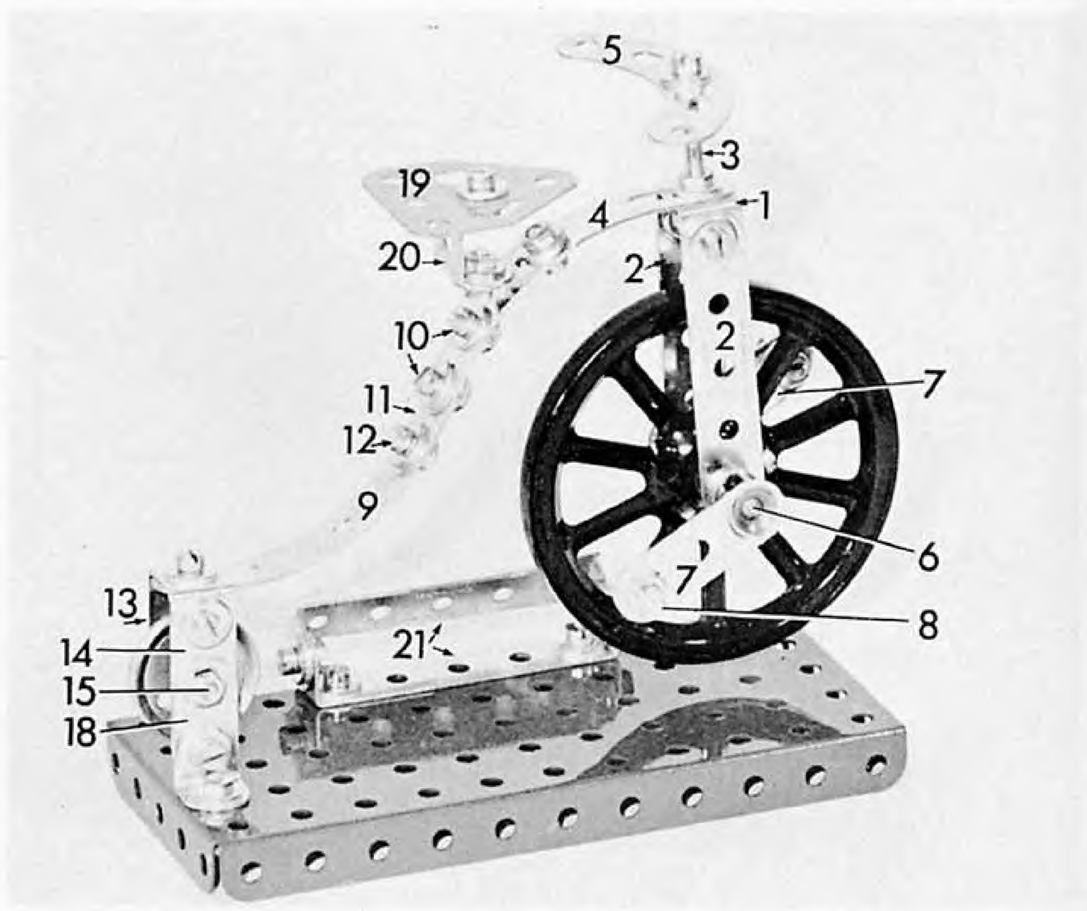
PHOTOGRAPHS BY PAUL SMITH

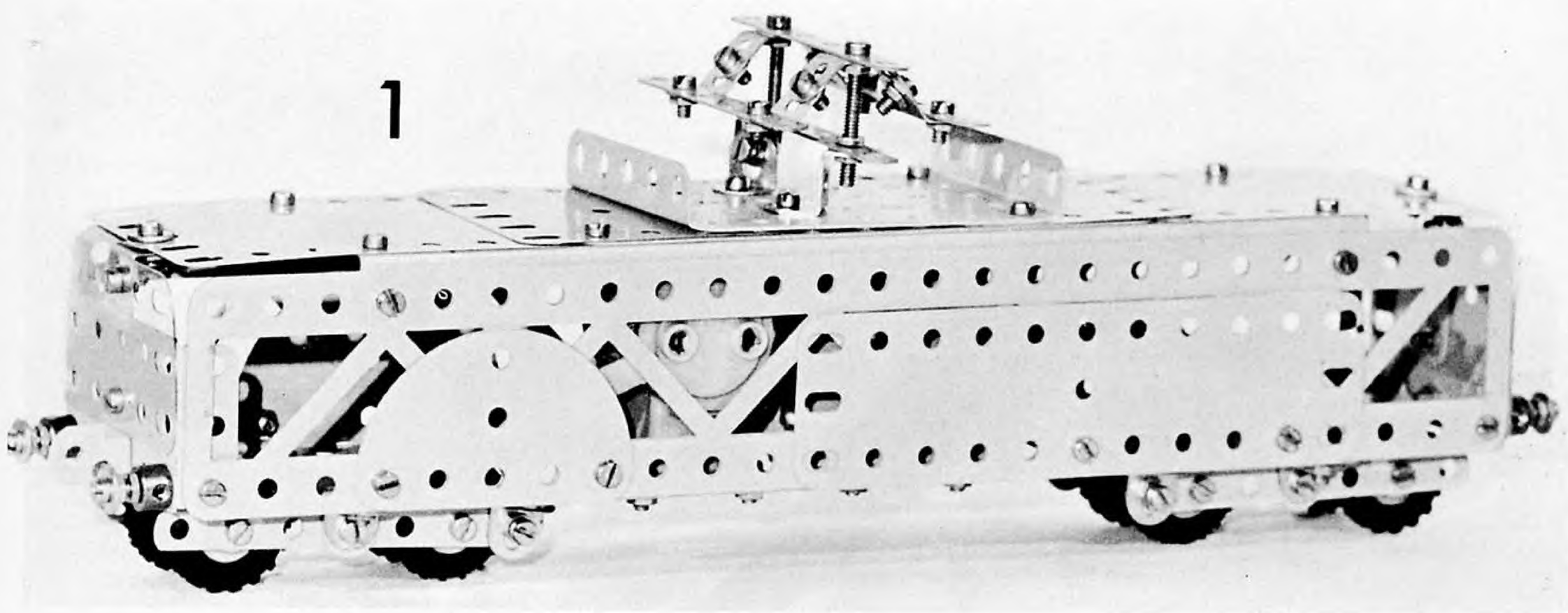
DESCRIBES TWO 'TRANSPORT' MODELS, ESPECIALLY

FOR YOUNGER READERS

A PENNY-FARTHING BICYCLE DESIGNED BY STEPHEN BURGESS [aged 8] AND AN ELECTRIC LOCO FROM THE CONTENTS OF A CRANE MULTIKIT DESIGNED BY TERRY POPE







The construction of this model should be largely evident from the photgraphs, but a few notes of guidance may be of help.

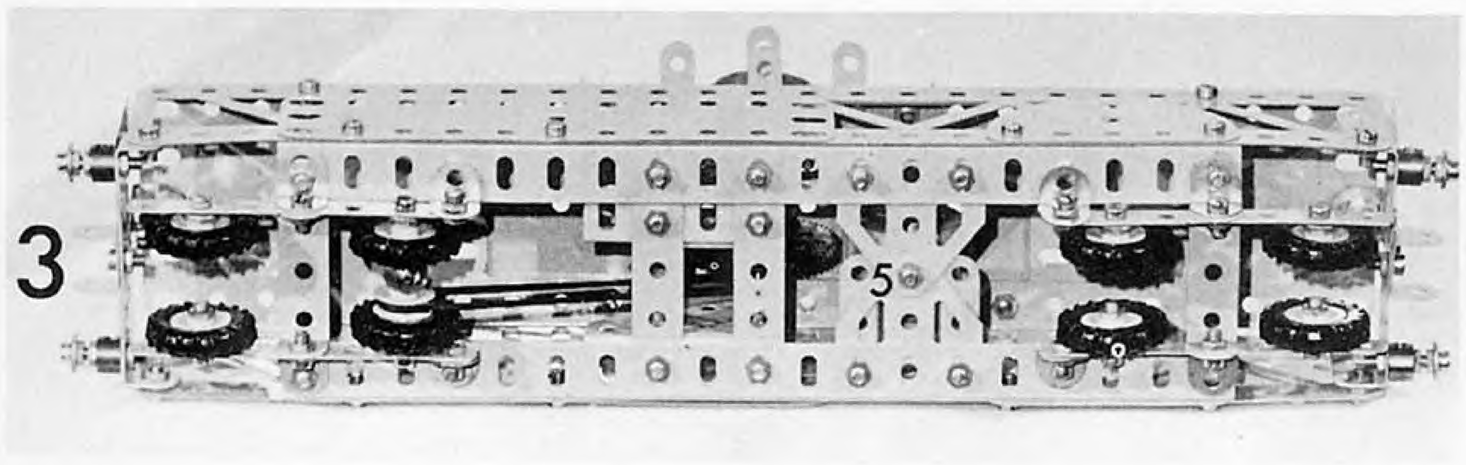
Begin by constructing the chassis referring to Figs.2&3. Each main side member is a 9½"Angle Girder 1, joined at each of its end holes by a 1½"x1½" Double Angle Strip extended by Angle Brackets. Sandwiched between each of these brackets and the DA Strips by its centre hole is a 3½"Narrow Strip which carries the wheels (½"Plastic Pulleys with tyres, on 12mm Bolts) as shown.

One inner pair of wheels are not fixed by 12mm Bolts, but arranged on an 'axle' made up of two 19mm Bolts which are held together by a male Dog Clutch component [Part 144a] 2. This part sandwiches a ½"Plastic Pulley to one of the wheels as shown. Remeber to loop the 6"Driving Band 3 over this Pulley when assembling the 'axle'.

The gearbox consists of two 1½"□Flat Plates bolted to 2"Angle Girders which are in turn bolted to two transverse 2½" Strips. Careful study of Figs.2&3 will show exactly how.

The Mk2 Junior Powerdrive Motor is supported on the chassis by a pair of Flat Trunnions 5 as shown in Fig 3. The drive from the Motor Shaft is via a 6"Driving Band to a 1½"Pulley 6 (Fig.2) on a 2½" Rod. Also on this Rod is a 15-tooth Pinion 7 and a ½"Plastic Pulley free to turn on the Rod. A 60-tooth Gear on another 2½"Rod meshes with the Pinion. It shares its Rod with a ½"Pulley with Boss over which the Driving Band from the built-up 'axle' passes. The free Pulley next to the Pinion acts as a guide for the Driving Band. Thus the drive is transmitted to the wheels.

For extra support, the Narrow Strips



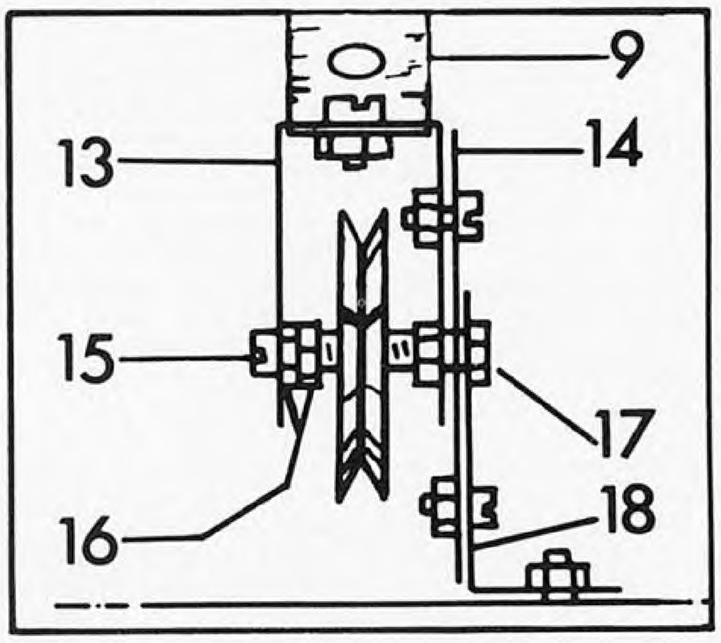
The Penny-Farthing was a very early form of bicycle, and seems to embody all the design features necessary for killing the rider. Its enormous front wheel meant that the rider was a long distance from the ground and therefore had a long way to fall when the worst eventually happened. The height of the machine was very great in proportion to its 'thickness', so the slightest tilt could spell disaster. However, there was one comforting thought: cars had not been invented, so you didn't get run over if you fell off; the worst that could happen whilst you were lying dazed in the road was to be trodden on by a passing cow!

BUILDING THE MODEL

Start by assembling the front fork. This consists of a ½"x½"Double Angle Strip 1, tightly bolted to two 2½"Strips 2. A 28.5mm Bolt 3 is lock-nutted to the remaining hole of the Double Bracket, and a Formed Slotted Strip 4 is clamped between the Nuts as shown. The 'handlebars' are a 2½"Stepped Curved Strip 5 held by a Nut at the top of the Bolt 3.

A 1½"Axle Rod 6 passes through the lowest holes in the front fork. Inside the fork is a Spoked Wheel, and outside the fork on each side a Crank 7 forms a pedal. The Cranks are fitted with their bosses towards the fork and at their other ends they each have a 12mm Bolt 8 lock-nutted.

The 'crossbar' of the machine is formed by another Formed Slotted Strip overlapped so that Bolts 10 pass through *both* and slots of the two Formed Slotted Strips. A 1½"Strip 11 is sandwiched between the Strips 4 and 9, and held by Bolts 10 and Bolt 12 to strengthen the join.



The rear fork is a 1"x½"Double Bracket 13 firmly bolted to the end of the slot in strip 9. To the rear upper hole of this Bracket, another 1½"Strip 14 is bolted. A 19mm Bolt 15 passes through the front lower hole of the Bracket and is fixed in place by a Nut (16 on the diagram). Another Nut is placed tightly against Nut 16, to act as an 'end stop' for the rear wheel which is a 1" Pulley that is free to turn between Nut 16 and one of a pair of Nuts 17 that lock-nut the Bolt 15 to the lower rear hole of the Bracket 13, the centre hole of the 1½"Strip 14 and the slotted hole of a 1"x½"Angle Bracket 18.

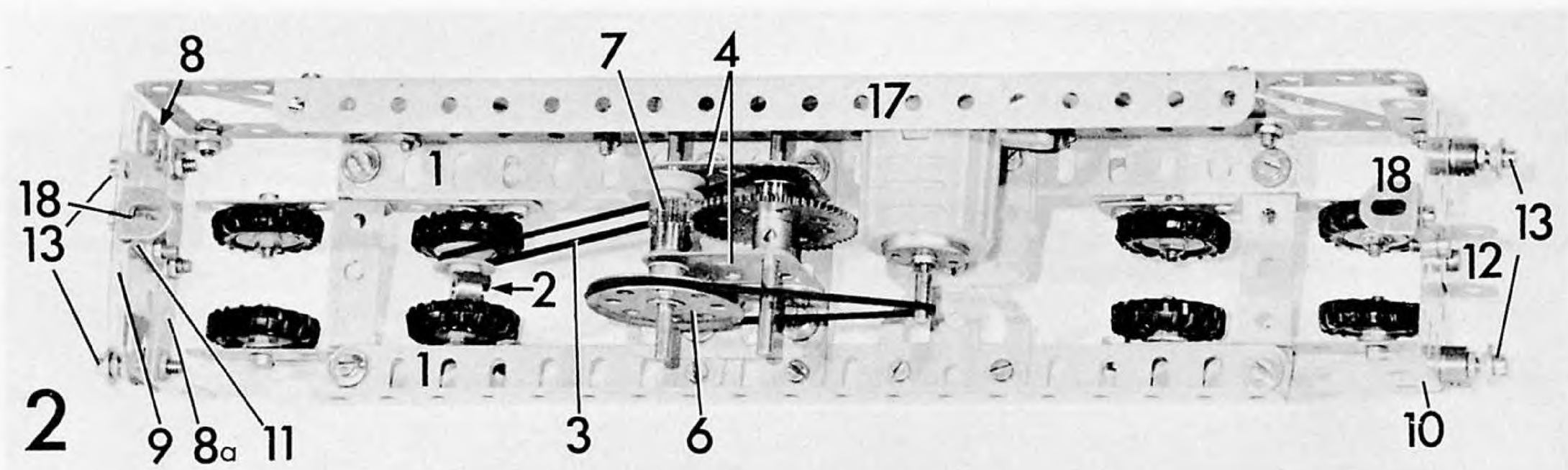
In the lower holes of 14 and 18 a further Bolt is fitted for strength. The last hole of Bracket 18 contains a Bolt to attach the machine to to its display stand, which is a 5½"x2½"Flanged Plate.

The saddle of the bicycle is a Flat Trunnion 19 bolted to a ½"x½"Double Bracket 20, which is in turn bolted to an Obtuse Angle Bracket which holds the saddle assembly to the 'crossbar'.

The finishing touch is provided by two 2½"x½"Double Angle Strips 21 arranged as shown forming a nameplate holder. A suitable name plate can be made from a piece of card on which 'Penny-Farthing' should be written in your very best handwriting.

PARTS LIST

2 of No 5	1 of No 18a	2 of No 62
2 of No 6a	1 of No 22a	1 of No 90a
2 of No 11	1 of No 29a	1 of No 111
1 of No 11a	16 of No 37b	2 of No 111a
1 of No 12b	46 of No 37c	1 of No 111d
1 of No 12c	2 of No 48a	1 of No 126a
1 of No 23a	1 of No 52	2 of No 215



carrying the wheels are fitted at their inner ends with Angle Brackets that *rest against* the main chassis members.

The Locomitive's sides are identical in construction and are as shown in Fig.1. On completion they are bolted to the main chassis members as shown in Figs.1&2.

One end of the model consists of a 2½"x1½"Flexible Plate fitted with a 2½"x½"Double Angle Strip, and is extended upwards one hole by a 2½"x1½"Transparent Plastic Plate 9 which forms a window. The other end of the Locomotive is a 2½"x1½"*Flanged Plate* 19 similarly extended by a Transparent Plate. Both end units are reinforced by internal 1½"Narrow Strips 11. Coupling brackets are provided by ½"x½"Double Brackets 12 bolted to the central lower hole on each end of the model. Each buffer 13 is constructed from a Collar, a Washer, three Nuts, and a 19mm Bolt.

The roof of the model is constructed as shown in Fig.4 from two 3½"x2½" Flexible Plates 14 overlapped one hole onto two 2½"□Flexible Plates 15 overlapped two holes onto a 3½"x2½" Flanged Plate 16. The completed roof unit is attached to the rest of the model by two 9½"Angle Girders 17 and two Angle Brackets 18.

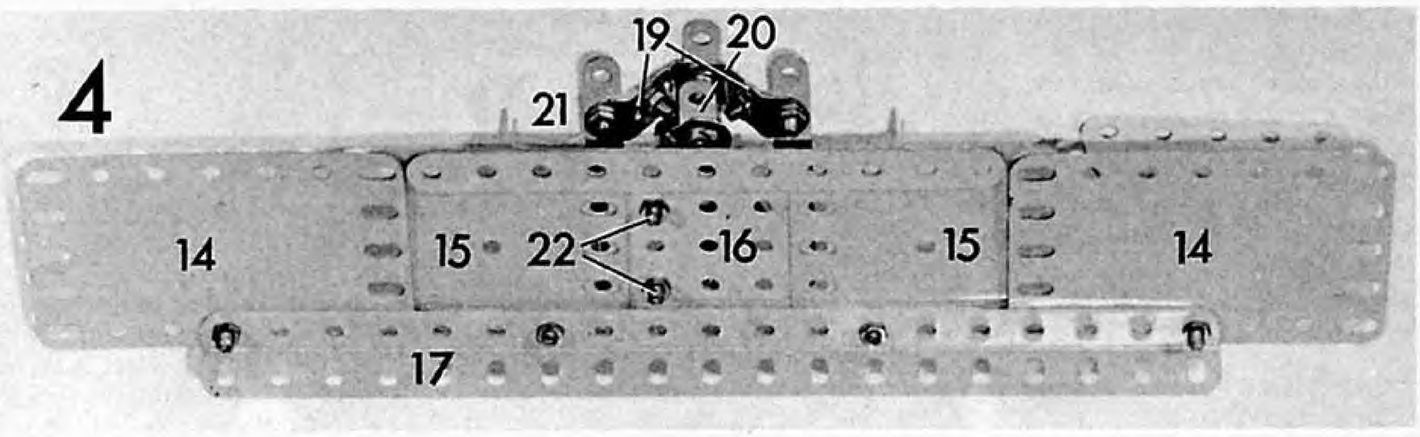
The dummy current-collecting pantograph is constructed as shown in Figs.1&4, from three 2½"Narrow Strips connected by ⎯/⎯ shaped brackets 19, each made by firmly bolting together two Obtuse Angle Brackets. The assembly is supported in the centre by two 28.5mm Bolts lock-nutted to another 2½"Narrow Strip 20, and on one side by a ½"Reversed Angle Bracket 21, and on the other side, a built-up ½" reversed angle bracket made from two Angle Brackets (see Fig.1). The supporting brackets are arranged diagonally so that their lower lugs may be bolted to the roof through the holes shown at 22 in Fig.4.

PARTS LIST

This model can be constructed with the contents of a Multikit Crane-Building Set plus 1 of No 23a ½" Pulley with Boss, and 8 of No 452 (or equivalent) Tyre for ½" Pulley.

For those readers who do not own a Crane Multikit, the following list of standard parts will be useful:

2 of No 2	56 of No 37b	1 of No 125
2 of No 5	100 of No37	2 of No 126a
4 of No 8a	25 of No 38	1 of No 144a
2 of No 9e	2 of No 48	2 of No 186a
2 of No 11	1 of No 48a	1 of No 188
12 of No 12	1 of No 51	2 of No 189
8 of No 12c	1 of No 53	2 of No 190
2 of No 16	4 of No 59	2 of No 190a
1 of No 21	2 of No 74	2 of No 193
10 of No 23	2 of No 99a	2 of No 214
1 of No 23a	6 of No 111	4 of No 235a
1 of No 26c	6 of No 111a	4 of No 235b
1 of No 27d	2 of No 111d	2 of No 235g
One Mk2 Junior Power Drive Motor		





POSTBAG

Meccano Magazine
18 Reading Road
Henley-on-Thames
Oxfordshire
RG9 1AG, England

THE NEW MM

The Editorial Offices have been inundated with congratulatory letters and notes. We have not received a single letter from a reader displeased overall with the new MM. Of course, there have been small points where opinions differ, and we have received several letters offering constructive criticism, but again, only on small points. So although (to paraphrase Abraham Lincoln) you can't please all the people all the time, we seem to be pleasing most of the people most of the time, which is most gratifying.

FROM WOLFGANG SICKER 1977 FEB 15

Dear Mr Nicholls,

I received the new Meccano Magazine; it seems to be very interesting and I hope that it stays this way. What I like is the large print and the size of the Magazine allows larger pictures which I find a very good idea.

I do not know when my father bought me my first Meccano Outfit, but it must have been around the first World War. Today I am 70 years old. I still have some parts from that time, for instance a Flat Plate and the Angle Girders which had to be screwed together to have a Flanged Plate at hand!

The Taylor Touch. I remember quite well the heavy Duty Crawler Tractor and the Giant Level-Luffing Crane. In fact I am in the posession of the Crane's instruction leaflets and the photographs; right now I am for the second time constructing this beautiful model. But I am sorry to say that I do not recall having read about the Giant Lorry Mounted Crane neither in the old *MM* nor in the *MMQ*. Should there nevertheless be building instructions around I would not mind getting them. Any possibility?[1]

About non-Meccano parts used I must say I did not feel very comfortable if I used them in a model. But after I found out that Mr Eric Taylor used the Marklin Ring in his Giant Crane I felt much better because I could use it now without bad feelings. As Liverpool starts now selling Marklin Motors (why, are ours not good enough?) I have no more scruples using foreign parts. By the way is Marklin on the other hand selling also Meccano Ltd products.[2]

Postbag. Mr Fuller states on page 10 of *MM* 1977 January"....which is an infernal nuisance....." Some time ago I bought additonal Angle Girders 24½", 18½" and 12½". The first mentioned ones were in order but as it came to use the 12½"ones, boy, I couid shake hands with Mr Fuller. Did I get mad! Is there no inspection at Liverpool before the goods are sent to the sales stores? Don't tell me they were not aware all this year of this faulty production. As far as I could make out only the 12½" Girders show a 92° angle. Therefore I use again my discarded Angle Girders instead of this awful manufactured ones.

Yesterdays. In the *MMQ* and the *MM* Car and Aeroplane Constructor Outfit have been mentioned. I was also a happy owner of the small and large Aeroplane Outfits; but one product of Meccano has not been mentioned at all yet: Dinky Builder. I still own the large Outfit. The parts consist of square and triangle plates with hinges. There are no bolts and nuts but rods to put the parts together. Do you remember this outfits? They must have been on sale in the 1950s as the instruction leaflet bears the mark 13/153/75. I think this would be also an item to remind Meccano fans of this product of bygone days.[3]

Now I wish you and your team lots of success with the new Meccano Magazine.

Yours sincerly Wolfgang Sicker
Sonneggstrasse 56, 8006 ZURICH, Switzerland.

1. **We have had several requests for Bert Love's instructions for Eric Taylor's models. May I draw readers' attention to Bert's advertisement at the back of this issue.**
2. **No.**
3. **The Dinky Builder system would certainly make a good feature for Yesterdays, and we are planning to include it in a future edition. Thanks for the suggestion. Ed.**

From Bert Love 1977 January 31

Dear Editor,

Please accept my sincere congratulations on the 'new' *Meccano Magazine*. It is quite obvious that the production team had very little respite over the festive season in their efforts to meet the deadline date with such a quality product.[1] I am delighted with the general excellence of the Magazine and it is a great pleasure for me to see the cover page and the title 'Meccano Magazine' in glorious colour once again.

Having handed out the bouquets, now for a couple of brick-bats. With the front cover and coloured centre-fold giving excellent coverage to the Motor Car Constructor outfits, I feel that three extra pages of text on the subject was rather too much – especially since half of it was devoted to the author's personal history, reminiscences and pure conjecture which added nothing of significance to the article as a whole and in my view, this padding was a waste of valuable "Meccano" space.[2] Similarly, the scathing review of the reproduction '0' gauge railway waggon (p39) may have merited space in a railway collectors' magazine but since there was nothing good to say about it why waste more precious space?[3]

I have read the recent correspondence on suggested new Meccano parts with great interest but quite frankly this is largely flogging a very dead horse. No matter how 'necessary' or 'sensible' a new part seems to its enthusiastic proposer, it has no chance of being considered if it falls down under the following scrutiny by Meccano Ltd –

(a) Is there a genuine demand for it running into hundreds of thousands of units?
(b) Will it be simple to produce?
(c) Will the production tools be uneconomically expensive?

If the suggested part does not get a "Yes" from questions (a) it is unlikely to be considered for questions (b) and (c). In fact, the acceptance of the design for the Large Toothed Quadrant was really an exceptional gesture to the adult enthusiast – it has a very limited sale indeed – and Meccano Ltd cannot survive as a philanthropic institution!

I welcome the policy of publishing readers' letters, but we have to bear in mind of course that opinions expressed here are personal ones. I also appreciate that no editor can keep all of his readers happy all of the time – he'd be daft to try to do so – and a magazine aimed at bookstall sales must have appeal to a wide range of interests even within an 'umbrella' title. The quality of the halftone prints and other illustrations were excellent, but I would add my own plea to that of the editor for Meccano enthusiasts to get good prints of their models sent in. There are hundreds of first class models on show at club meetings these days and I am sure that the editor will publish more of them if enthusiasts can give him the necessary back-up.[4]

Yours sincerely B N Love
61 Southam Road, Hall Green, Birmingham, B28 8DQ, England

1. **I did in fact take a day off on December 25th — so that I could work on 'The Hornby Companion'!**
2. **I found it fascinating, a valuable insight into a time before I was born.**
3. **Surely many readers are Hornby enthusiasts and many Hornby enthusiasts are readers. Hornby Trains are all part of the great Binns Road tradition, and like Dinky enthusiasts, Hornby collectors should feel that the MM is their magazine.**
4. **I certainly will! Ed**

From Dr Stephen Lacy 1977 February 2

Dear Mike

Congratulations on the new format *MM* – super. I only hope the flow of material is kept going so that the monthly publication can become a reality.

If the monthly format does become a reality will any room be found for non Meccano articles. – ie articles on engineering subjects in the widest sense – something along the line of the 1930 vintage articles – I always felt that the 1960 - 1970 vintage articles were more superficial than the 1930 ones – or is it just that I am older now! I would hope that room would be found for some thing of this nature – but only a minority content not the 90% content with 10% Meccano as in the past.

Glad to see some criticism of new marterial and books – I have not seen the criticised parts so I can't really pass comment, the concept of criticism is very valid.

Glad to see so much room for correspondence – if *MJ* is derunct then I hope that its correspondence columns will be tranferred to *MM*, both by the corresponders and by *MM* also!

I managed to get a Crane Multikit 'from Santa' – which I think is the best outfit in its range that I have ever seen – the models are rugged and well-designed and *work*.

I look forward to seeing (and having) the new Marklin Meccano Motors – if they are as good as the Crane Motors they will be worth waiting for.

Best wishes Stephen Lacy
28 Priesthills Road, Hinckley, LE10 1AJ, England.

From Stephen Jenkins 1977 February 21

Dear Mike and Paul,

First congratulations all round on the new Meccano Magazine. Producing a magazine of such superb quality is, of course, a feat we have long come to expect of you. But with colour plates, and a magazine 50% larger, and an effective cost of 15p less than, *ME*, you have certainly surpassed all expectations. Well done! And keep up the good work.

Brian Williams' letter (*MM* 1977 Jan) suggesting reprints of old *MMs* is a good one, and I would certainly subscribe if such a magazine were to appear. But I feel that the idea as he put it is somewhat impractical. Referring to the *Meccanoman's Guide* (Supplement 1) the so-called 'Golden Years' (particularly 1926-1932) produced at least 15 pages of models a month. Most other months have produced at least 5 to 10 pages of models; So that, even if repetitions were removed, an average greatly in excess of 5 pages would be obtained.Therefore '20 pages every 3 months' would take as long to produce as the original issues – *over 60 years*. A rate of 40 pages a month would produce a more reasonable period – 10 years – but a very expensive magazine.

With best regards Stephen Jenkins
1 Stanwick Close, Roehampton, London, SW15 4EF England.

UNFAVOURABLE REVIEWS

We have had some letters commenting on the reviews featured in the January MM. The vast majority of the letters are wholeheartedly in favour of the honest outspoken style of our reviewers, but two or three have been received which have been less enthusiastic about unfavourable reviews. Again, it would be easy to publish the many letters of praise and just sit back sanctimoniously, instead, I have chosen to publish one of the few letters that criticize one of our reviews.

From J M Pentney 1977 February 1

Dear Editor,

I was quite enchanted to open the envelope and see emerging the delightful cover of the new *MM* complete with vintage print, the like of which we haven't seen for far too long, and vintage models which most of us would give our back teeth to get our hands on.

If this standard can be maintained, and the magazine revert to a monthly, Meccanomaniacs will be in a 7th heaven!

Both first and later impressions were very good. Your team seem to have found just the right mixture to appeal to a wide readership. I particularly liked the Postbag which together with Hints and Suggestions was an attractive feature of the *Meccanoman's Journal* in those halcyon (but badly printed) days of G M Morris, whom many people sorely miss. Could you not inveigle him into a contribution or two?

Your 'In View' feature is also a step in the right direction in that the reviewers are not afraid to speak their mind, although I feel Alf Reeve was less than fair to what is after all a very laudable attempt to reproduce a little pre-war tinplate glory. I hope future reviewers will be equally to the point and call a spade a spade. Much of what issues from Binns Road these days is of very dubious quality but rarely does a reviewer regard Meccano with anything less than the deference due to a bishop! And fancy going to Marklin of all people to make an electric motor!

Yours sincerely J M Pentney
93 Ainsbury Road, Coventry, CN5 6BA, England.

Our position is this: whilst applauding firms and individuals who have the initiative and courage to produce 'Replicas' and other goods, we feel that the majority of readers will share our opinion that the manufacturers who cannot 'get it right' would do better not to go into production at all, because in so doing, they spoil the market and discourage another producer from making a proper job of it. So, in the end, it is the enthusiast — the customer — who suffers both ways. Ed.

MULTI-MOTOR DRIVES AND MECCANOLOGY.

From Michael Edwards 1977 February 15

Dear Mike and Paul

I would like to say first how extremely impressed I was with the new *MM*. This is what an *MM* should be, a magazine for the serious modeller and not just a mere 'hobby' magazine. I am sure it will have a great future especially if it reaches the bookstalls.

I would like to make some comment however on one or two points. Firstly, Michael Walker has a good idea with multiple motor drive for large models (p43), but in my experience it has not been so successful. Admittedly two Motors drove my Single Deck Bus well, but I put two in my London Transport K-type which was much larger and heavier and I had no end of trouble with slipping Gears and Universals.

With the latter items, the Fork had a happy knack of slipping round its Collar. The problem was that I was putting too much power through, and because of the dead weight of the model, it had to go somewhere. I therefore removed one Motor, and as you will know, the model proceeds quite happily, with a balanced power/weight ratio. This is one reason why I find vintage vehicles excellent ones to make as a proper scale performance can be obtained without having problems of parts becoming loose. I wonder how Michael Walker managed on this point.

To continue, I must say I read the correspondence columns with some amusement. I think a new science called 'Meccanology' has been formed and perhaps I am as guilty as any. Some new parts would be a good idea, but I personally find the range sufficient, except for slipping collars! New parts take a long time to become absorbed into the system, viz the notable absence of Argentine Gears in any appreciable quantity, despite the wide range of possibilities they offer. People much prefer to use the parts they know, and new ones may take a few years to become popular.

As for when Meccano is or is not Meccano, I would personally spring to Bert Halliday's defence not least because Meccano is the trade name of the Liverpool Product, a fact which Mr Suttle seems to have overlooked.[1]

Yours faithfully Michael Edwards
63 Bullington Avenue Worthing Sussex (late of Watford), England

1. **When I saw pages 4 & 5 of January's MM I wondered if I should have asked: " When is Meccano Marklin even though I now have six more Meccano Motors that I didn't have before: three No 1071 and three No 1072." Clyde T. Suttle.**

SOUTH-SEEKING CHARIOT

From N A Davidge **1977 February 5**

Dear Editors,
I was interested to read Terry Morris's article on the South-Seeking Chariot in Jan 77 *MM*.

Readers might like to know that a full explanation of how and why it works was given in the Sept 1955 *MM*, and a Meccano model appeared in the January 1957 *MM*.

I later tried to construct it but was unsuccessful until it was pointed out in the *Meccanoman's Journal* April 71 (p 658) that it was impossible to make it with modern parts. I look forward to building Mr Morris's version.

Congratulations on your first *MM*.
Yours faithfully N A Davidge
480 Lynmouth Avenue, Morden
Surrey, SM4 4RU, England

From Dr Keith Cameron **1977 February 11**

Dear Mike and Paul:
MM vol.62 No 1 deserves highest praise – namely that it is even better that we thought it could be. Few could attain this high standard, fewer still could maintain it.

'Postbag' provides a provocative forum challenging thought, response, and action.

Terry Morris has produced an improved South-seeking Chariot. The version designed by M J Oliver and described on page 36 of *MM* 1975 January needs some alterations before it performs properly. I described these in detail in *MJ 23* 1971 April page 658; the main problem in the model as described is that is was impossible to space the centres of the road wheels apart by a distance equal to the diameter of the tyres. This vital feature necessary to the function can be achieved by using Long Threaded Pins as axles, for the 3" Pulleys need to be spaced considerably farther from the 1½" contrates than is shown in the picture.

Reference should be made to pages 498 and 499 of *MM* 1955 September for a detailed article (with excellent picture and two diagrams) entitled, 'A Mystery of Ancient China', by F W Cousins, A M I E E describing the origins, principles, and construction of the South-Seeking Chariot. He notes that the Chinese Emperor, Huang-Ti, used this device in 2634 BC and was therefore aquainted with (and possibly invented) the differential. If he were alive, doubtless he would win the *MM* Competition announced at the bottom of page 37 of the January *MM*

It is to be noted that neither Morris nor Oliver follows the system of gearing exactly as shown in the model in the Science Museum. Perhaps a subsequent competition could be held for an elegant model more true to prototype. In the meanwhile, one must heartily commend Terry for a neater model with that irrestistable Chinese figurine.

As ever, Keith
Homeplace Clinic Ary Kentucky 41712 USA

WORKSHOP REPRINT?

From Jim Smith **1977 February 16**

Dear Mike and Paul,
I am sure that many Meccano enthusiasts young and old would like to see plans for the 'Workshop in One' described in *MM* August 1968 (Vol 53 No8) by 'Spanner'. Is it possible for you to reprint plans for this amazing machine.

The item in question, for anyone who hasn't heard of it, is a fairly small (7½" x 7½" x 9") machine incorporating a fretsaw, endless sanding belt, sanding disc and a circular saw. Owing to the dropping of a circular saw blade from the Meccano range this has been replaced by a 50-tooth gear.

For anyone interested in Eric Taylor's Heavy-Duty Crawler Tractor, see *MM* October '68 (Vol 53 No10) section entitled 'Masterpiece'.
Yours hopefully Jim Smith,
41 Merkland Drive, Kirkintilloch,
G66 3RU, Scotland

As the article 'Workshop in One' appears complete in the MM for August 1968, we feel that to repeat an item only 8½ years old thereby excluding a new item to do so would not be too popular, but we invite readers to comment. Ed

HOW DO YOU DO?

From H Brown **1977 March 1**

Dear Sirs,
As a long-time admirer of your contributors such as the late Eric Taylor, I wonder if someone would tell me where they find the time and the space to perform their miracles.

Maintenance on the house, the car and the garden, plus competing for space with the wife's dressmaking leave little time for Meccano, so how do these gentlemen do it? Perhaps one of them will tell us.
Yours faithfully H Brown,
51 St Cyrus Road, Colchester, Essex,
CO4 4LR, England

HELP!

From L G Bond **1976 December 2**

Dear Sir,
I am wondering whether any other Meccano Enthusiast can help me with the following information.

I have a Meccano Dealer's *1925* Meccano Cabinet with a later *1928* Meccano display of parts in it.

The cabinet has a list of parts and prices (N2) included for sale in 1925, but evidently when the new coloured parts arrived on the market the velvet display boards were changed. Has any reader any details of the 1925 Display as supplied with these cabinets. All replies answered.
L G Bond 86 Brecken Road,
Stratford, New Zealand

CAST 5TH WHEEL

From Jon Clements **1977 March 13**

Dear Mr Nicholls,
I have just received my copy of Jan '77 *MM* and it's superb – please keep up the good work and get into monthly production as soon as possible.

I would like to make a couple of comments about articles in the Jan edition.

Firstly I possess a No2 Car Constructor outfit in which the 5th wheel (ie spare) is a *casting* not a pressing as mentioned in the article – is this particularly rare?

Secondly I was very impressed with your 'In View' article and, whilst I do not necessarily agree with all the comments made about the Pickfords Wagon and the replica headlamp, it is a refreshing change to see critiscisms appear in print – an all too rare occurence these days.
Yours sincerely Jon Clements
BCL Eng. Dept., P O Box 3,
Selebe-Pikwe, Botswana

DON'T PRINT THIS!

From Adrian Ashford **1977 February 1**

Dear Sir,
Congratulations to you and your team for the first issue of the new *MM*. The magazine as a whole greatly exceeds my expectations. I am very impressed by the all-colour cover and centre-spread – I only hope that you can afford to have at least a colour cover on subsequent issues. The thing which impressed me most of all before I even opened the Magazine was the reversion to that good-old yellow-outlined-in-red for the Magazine name on the cover. It's nice to see a familiar name in a once-familiar style of lettering again. What is important is that this is very eye-catching and should go a long way towards helping to sell the *MM* if you get it back on the bookstalls for casual sale, as I know you hope to do.

May I suggest that as a step towards monthly publication, you publish the magazine on a bi-monthly basis (ie once every two months), perhaps getting it onto the bookstalls at the same time, so you can see how well it sells, and then go over to monthly publication if all goes well.[1]

Now for one minor criticism: Too much space in the magazine is devoted to readers' letters (most of which are excessively long anyway). I personally would be quite happy if you dropped this sort of thing, but I know it is your policy to publish readers' letters and other readers would no doubt object if you did not do so – You can make a start in the right direction by *not* publishing this letter![2]
Yours faithfully A J Ashford
121 Shooters Hill, Woolwich, London,
SE18 3SA England

1 **After some research, we have found that bi-monthly publication is unpopular because of a psychological block which confuses subscribers into not knowing when to expect the next issue. I can't explain why, it seems that it's just one of those curious effects. Psychology aside, there is little difference to us between bi-monthly and monthly: the Magazine will go monthly.**
2. **I wouldn't dream of depriving other readers of your very valid and interesting remarks. Ed**

WOT NO DINKYS?

From Dave Staughton **1977 February 11**

Dear Mike,
Just a short note to say yes I think I do like the new Meccano Magazine and to wish you all the best.

But why did you leave out the 'Dinky Toy News'? There are collectors I think would like to see what new models are released by Meccano Ltd in the UK.

I myself only get the magazine to see what new models are on the way, for I have been a collector of Dinky Toys for over 30 years now and I would like to see more pages on Dinky Toys ie you could run a page on 'Dinky Toys Golden Oldies?' As a sub heading you could have 'What Made Them Famous', then you could print a photo or two and some short notes about the models of yesteryear.

Kind regards and I would like to hear from you what you think about the above.
All the best wishes Dave
PO Box 74333, Turffontein, 2140,
Johannesburg, South Africa

No 'Dinky Toy News' appeared in last January's MM for reasons explained near the end of page 10 of that issue. As you will see from this issue — Dinky Toys are back — and will stay back! Dinky Toys ancient and modern are an important part of the Meccano world and will be given good coverage in future issues. Ed

FLEXIBLE PLATES

From R H Baird FRCS **1976 December 30**

Dear Sir,
Having been for a long time interested in the Meccano Hobby, though of recent years not very active in it, I was very interested in Geoff Coles' Letter in Edition No12 of *Meccano Engineer* especially his remarks regarding the Flexible Plates.

I have for some time been perturbed about these and the harm they do to the growth of the hobby. I have watched many young boys between 8-10 years who were given sets ranging from No2 to No4 discard them after about a week, as all the Flexible Plates were bent and the paint badly chipped. There are at least 20 models in the Manual for Sets 2, 3, 4 which have bent plates.

With my own children, I overcame this by getting extra Strips and model books of the late 1920s.

One notices that in the Marklin books, there are very few models with bent Plates.
Yours faithfully R H Baird
20 Broomhill Park, Belfast, BT9 5JB,
Ireland

'MECCANO' STICKERS

From Dr Clyde Suttle **1977 January 20**

Dear Mike,
May I make a 'why don't they' suggestion? In making up display models, I like to identify them as Meccano. The current red or blue nameplates with Meccano on them are fine when you can get them, but it is often difficult to attach them to a model.

I would like to recommend to Meccano Ltd that they might make up a sheet of reusable vinyl stickers – like those in the Multikits – in red and blue with the word 'Meccano' in various sizes on it. If these sheets were then offered for sale – or included in outfits – we could stick them ad lib in suitable places on our models. The cost of production could surely be offset by the advertising value of displayed models.
Sincerely Clyde T Suttle,
6062 Cerulean Avenue, Garden Grove,
California, 92645, USA

DATING MECCANO





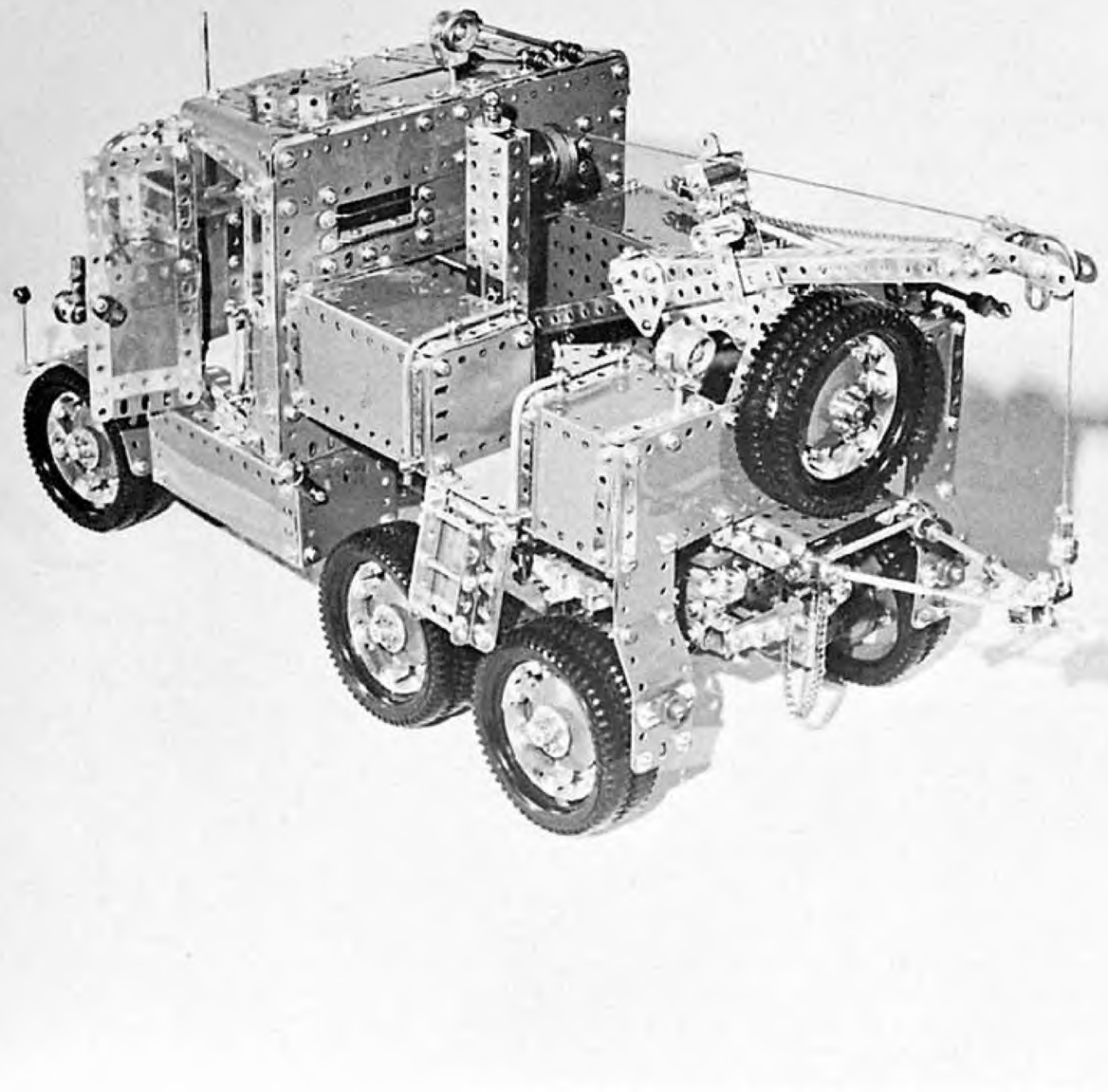
From Stephen Weldon **(Aged 12)**

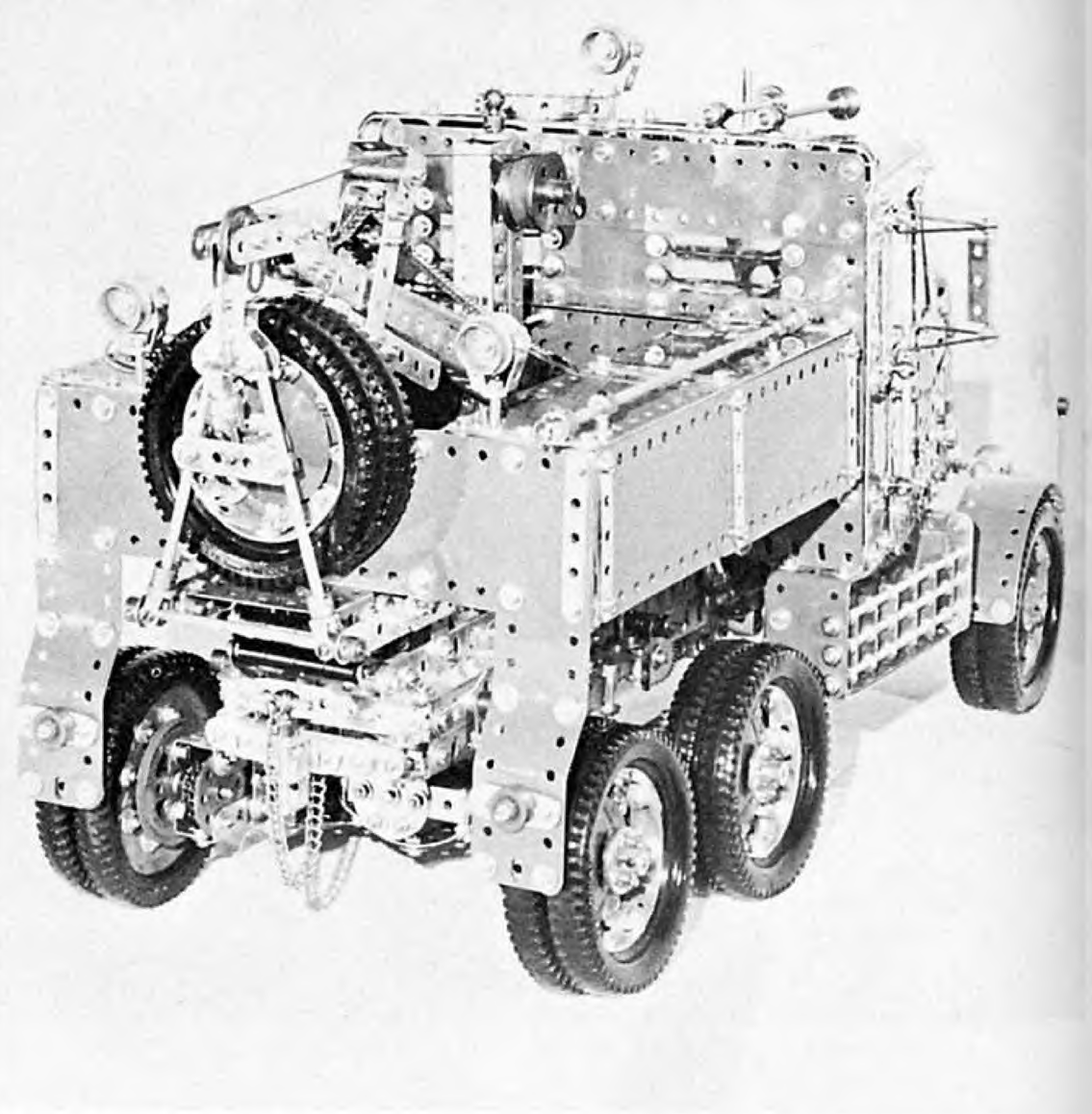
Dear Sir,
I buy a lot of second hand Meccano sets and new sets too. One day I went to a second hand shop and in the window there was a Pre-War Meccano Set 5. I went in the shop and asked how much it was and we agreed on £5.

When I got home I found an old Meccano Magazine order form and a Meccano Guild Application form under the yellow plastic tray. I have dated it back to about the same year the war ended which was 1945. I have done this by the size of the magazines on the application form.
Signed Stephen Weldon
12 Wild Brook Grove, Little Hufton,
Manchester, M28 6FT, England

I am very glad to hear of young people having an eye to Meccano's illustrious past, but I am afraid that you have gone a little astray with your dating, Stephen.

The "yellow plastic tray" to which you refer was a feature of the sets of the second (lighter) post-war red/green outfits of the late 1950s. There is no printing reference on the MM leaflet that you sent, but the magazines shown are February, March and April 1951 (the MM was published in the 203x140mm format from January 1942 until December 1960). Perhaps one of our learned readers would care to write an article/series on methods of dating Meccano Products. Ed







SUPER SCAMMELL

DESIGNED & DESCRIBED BY TERRY BRIGGS

Photographed by PAUL SMITH

The model is of a 6-wheel-drive 10-tonne Recovery Tractor supplied to the British Army by Scammell in 1950. The scale is 1:10, and all mechanical functions have been reproduced as near as possible to the prototype

The model weighs 11kg is 610mm long, 254mm wide, 305mm high with a wheelbase of 356mm. It took about 4 years to design and build. The main body was constructed from Meccano Plastic Plates on a framework of Strips and Angle Girders.

Power comes from two Motors-with-Gearbox, running in tandem under the bonnet. Drive is taken through a clutch, controlled by a pedal in the cab, via a 6-Speed Gearbox with power-take-off to a transfer box and then to differentials in the front and rear axles.

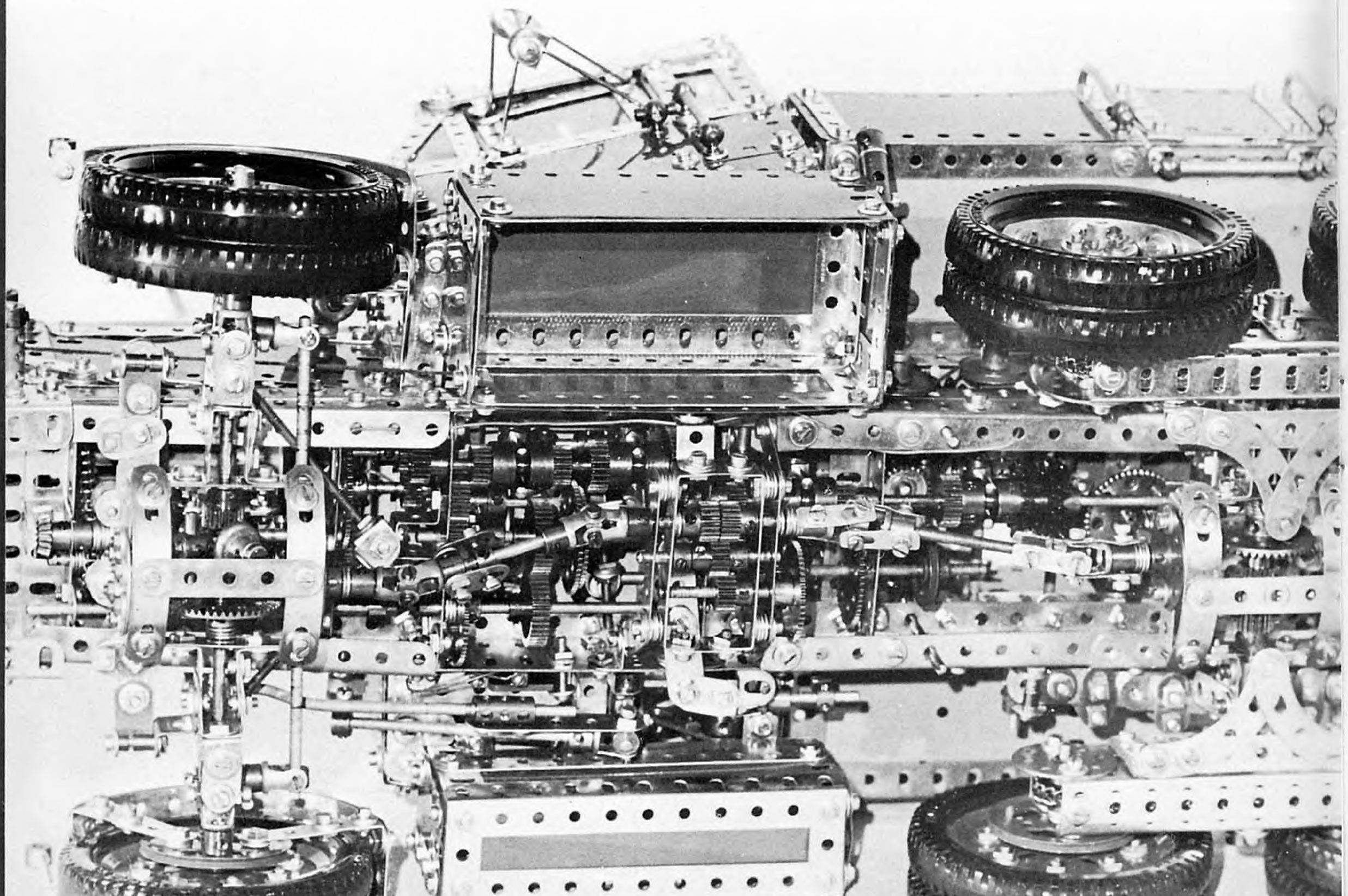
The front axle is mounted on a transverse semi-elliptical spring, centrally pivoted to the chassis.

The steering gear is an exact copy of the original, except for the power assistance.

The rear axle is fully articulated with 'walking beam' pivoting chain cases.

The jib was copied from photographs of the full-size vehicles, and is extended manually. The hoist and winch are driven from the gearbox PTO and controlled from the cab. The winch is designed to pull from front or rear of the truck.

A hand-brake operates on the transmission, but no service brakes are fitted to the model. The Motors are switched on and off by pressing the accelerator and brake pedals in the cab.





FIRESIDE FUN



HOW WELL DID YOU READ THE MMQ

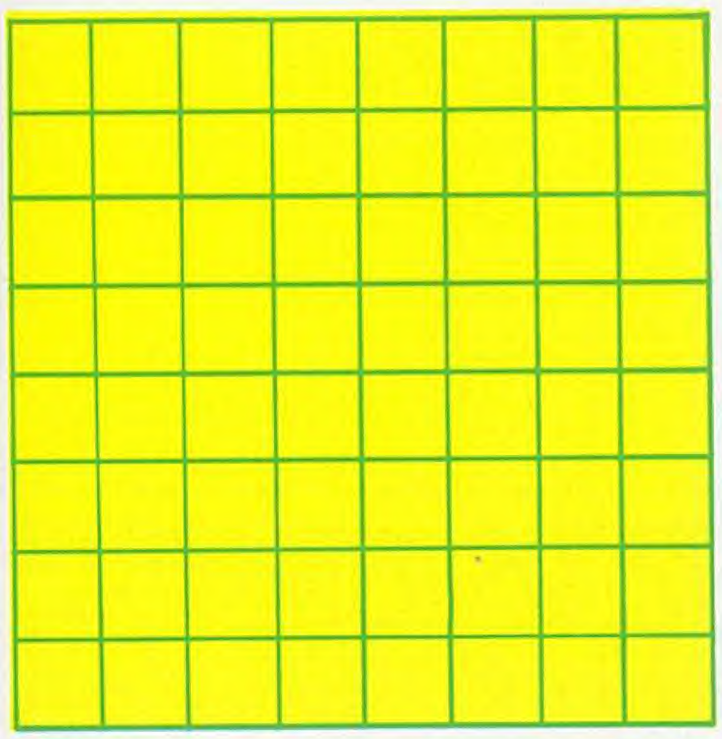
A Quiz by Colin Hoare Answers on p 81.

1. In what two ways did the first MMQ differ physically from its successors?
2. What is Geoff Pratt's major contribution to Meccano?
3. Which "Past Master" model was called a "Past Maser"?
4. Who built a life-size model of a motor cycle?
5. Which model was accompanied by a photograph of its builder? What was the special feature of the model?
6. The complete building instructions for how many models could only be obtained by writing to Meccano Ltd? Which models?
7. Who built a model of the Concorde? What size Meccano set did he use?
8. What 'crime' against Meccano did Mike Nicholls apparently commit in 1975?
9. One Past Master, in actual fact, was published for the first time in official Meccano literature during the life of the MMQ. Which one?
10. The instructions to build one animal model appeared in the MMQ. Who designed it?
11. Which Meccano Club Secretary had his name misspelt on two different occasions?
12. Apart from club reports, what contribution did the Assistant Editor of the new MM make to the MMQ?

A NUTTY CROSSWORD

Contributed by D Higginson.Solution on p81

Arrange 40 Nuts on the squares so that each horizontal and vertical row of 8 squares contains 5 Nuts.



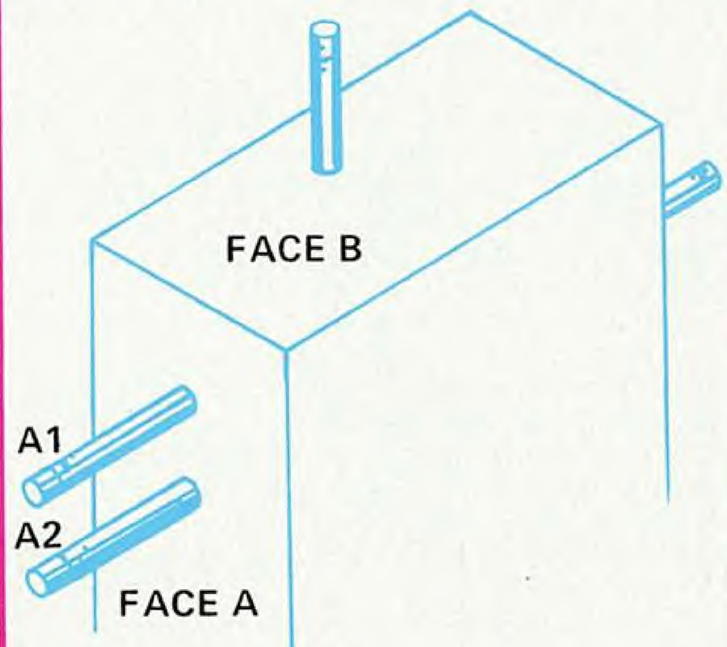
'TOOTHLESS' A REALLY DIFFICULT PUZZLE

Contributed by Stephen Tonkin
Answers will appear in a future edition of MM

As an extension for Eric Partridge's puzzle about the four-gear differential, here is another on similar lines.

Once again, only standard parts from the Meccano range are to be used, without mutilation, and in conventional alignments. However, a difference is that no toothed parts, either gears or sprockets, are to be used. Once again, the drive is to be completely positive: no cords or other frictional devices are allowed. It should be added that although the first few questions can be answered with mechanisms achievable with commonly-owned sets, the later questions require rather more complication.

If the last two questions were asked on their own, readers might immediately think that it was difficult or impossible. However the questions have been arranged so that the step from one to the next is not too difficult.



LAYOUT

Imagine a rectangular box whose dimensions are of your own choosing. Faces A & C are parallel, on opposite sides of the box. Face B is at right angles to both these faces. Anywhere you like on these faces, shafts emerge from the box, perpendicular to their faces. On face A there are two such shafts A1 & A2. All four shafts are in the same plane, and A2 is colinear with C. The rotational direction of a shaft is defined as being of positive sign if its rotation is clockwise when looking down the shaft at the box face from outside. Required velocity ratios are now specified. These velocity ratios are to be achieved without ripple. Question 1 is of trivial nature, to assist understanding of the defintitions. The answer, of course, is a straight through shaft from A2 to C. 7] is, of course a differential, and is really a toothless form of Mr. Partridge's puzzle.

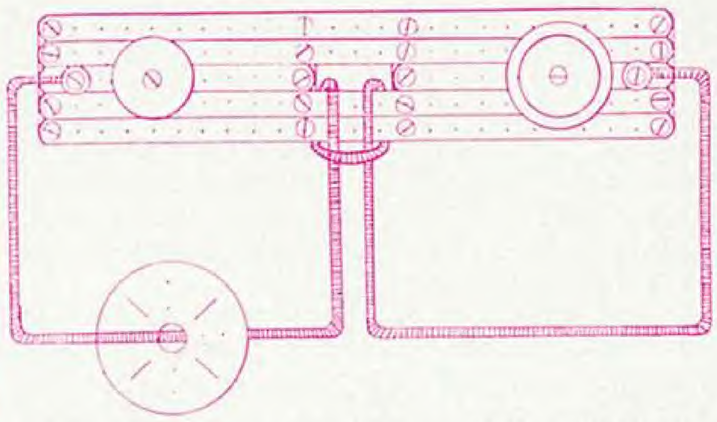
QUESTIONS

1] . . A2:C::1:-1	4] . . A2:B::1:-1	7] . B:A2 - C::1:1
2] . A1:A2::1:-1	5] . . A2:B::1:1	8] . . B:A2::1:2
3] . .A1:A2::1:1	6] . . A2:B::1:1	9] . . B:A2::1:3

THE 'PASSING THE RING THROUGH THE HOLE' TRICK

Contributed by Stephen Jenkins
Answer on p81

This model can of course be simply cut out of a piece of card, but its fascination is increased when it is built in Meccano. It has the great advantage that although solving the puzzle should challenge even the Meccanoman, the list of parts is such that even the owner of the smallest set should have little difficulty in making it (with a few obvious modifications).



The model consists of two 5½" x 2½" Flat Plates joined by four 12½" Perforated Strips. The centre row is filled by two 5½" Perforated Strips with a 1½" gap between them, through which the string will later be threaded.

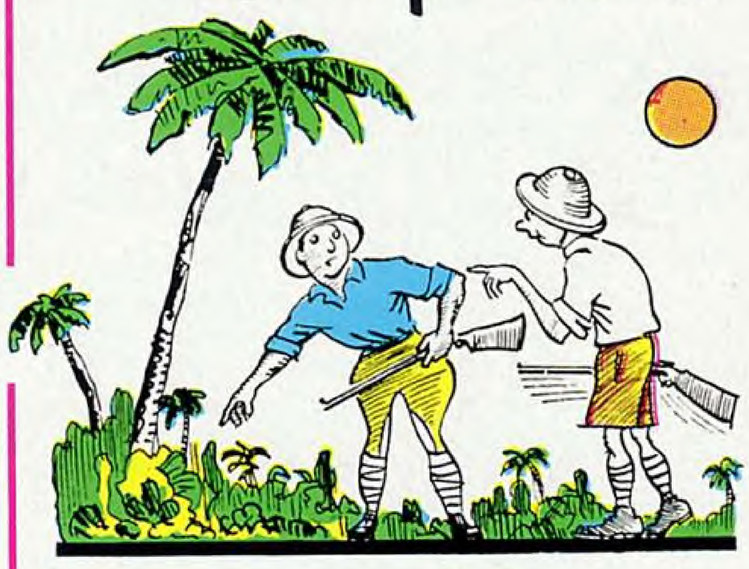
The left-hand side is marked by a Conical Disc supported on Washers, and the right-hand side by a Conical Disc inside a Wheel Flange. The 'ring' is represented by a Face Plate, Without Boss [Part 20c].

A piece of thick cord is threaded as shown, being held in position by a ¾" Washer at each end.

The object is to pass the ring from the left-hand to the right-hand side of the loop (without breaking the cord).

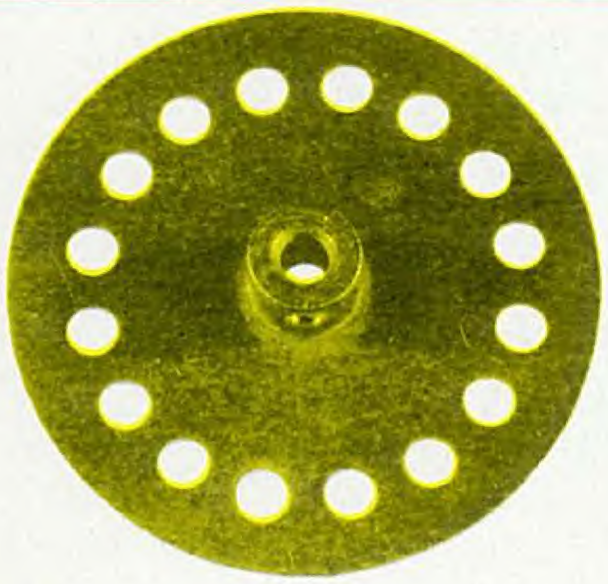
NOTES: use thick cord. Meccano Cord is not thick enough. The cord must be fitted to the centre of the assembly exactly as shown.

WIN A MECCANO MOTOR IN OUR Cartoon Competition



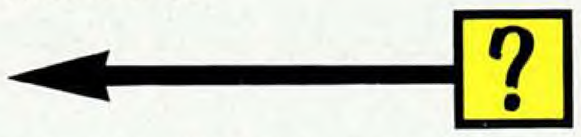
We have reproduced here a cartoon from an old MM, but we have not included the caption. Reader's are invited to send their own NEW caption/s to the Editor. In our next edition, we shall print the old caption and the winning entry which will earn its originator a MK2 Junior Powerdrive (Crane) Motor.

Remember, the idea is not to guess the original caption, but to invent a new one. The winner will be the entry that is, in the opinion of the Editor, the most witty or clever. The entry is not restricted to captions relating to Meccano.



SPOT THE PART

Contributed by Dennis Higginson
Answer on p81

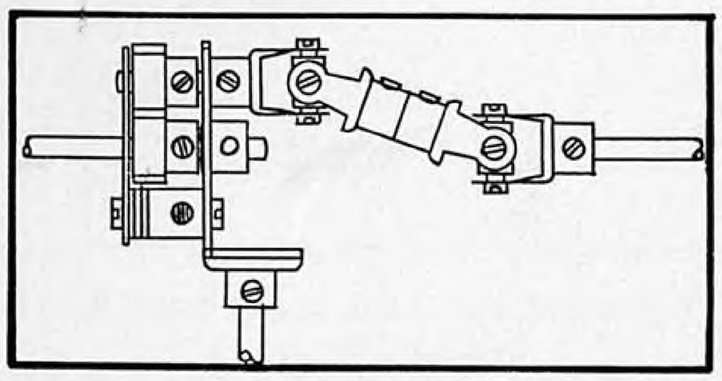


The part illustrated here is obviously not Meccano, and if you recognise it straight away, you certainly know quite a bit about constructional systems. For those who are stumped, reference to one of the back numbers of Meccano Engineer will provide the answer. If you are disadvantaged by not owning any Meccano Engineers, the answer also appears on page 81.
Clue: The oldest ride at the fair?

ERRATA *'Toothless' Puzzle, question 6: for 'B' read 'C'; question 7 should read "B:A2-C::1:2".*

MM★COMPETITION★PAGE

SOLUTION TO THE '4 TOOTHED PARTS DIFFERENTIAL' COMPETITION IN JANUARY'S MECCANO MAGAZINE



Construction is largely shown in the diagram. The Contrate Gear on the propeller shaft engages a 60—tooth Gear which acts as the 'crown wheel'. A Wheel Disc is joined to this by Bolts into a Threaded Boss, with sufficient Washers to make the space just over ½ inch. Two more Threaded Bosses are placed 90° each way from the one shown. Opposite the first Threaded Boss, a 1" Axle Rod passes through holes in the Wheel Disc and 60-tooth Gear, carrying a ½" Pinion and a Universal Coupling as shown. A second Universal Coupling connects to one 'halfshaft'. The other 'half-shaft' carries the last toothed component, another ½" Pinion.

The essential features of a differential mechanism are that the propeller shaft should drive the cage, and that when this is stationary, rotating one half-shaft should turn the other in the opposite direction. This reversal between the two half-shafts is commonly produced by three bevel gears, often with a fourth to keep the mechanism balanced. In the spur gear differential, a train of four or five pinions is used to get from one half-shaft out to a parallel shaft in the cage, and back to the other half-shaft, and maybe more pinions to balance and share the load, as shown in Fig 3 of my article on Combination Drives for Striking and Chiming Clocks [*Meccano Magazine* 1977 January p41/42]. But the mechanism now shown gets toothed components to a minimum by using only one pair of pinions to reverse the movement from one half-shaft, and universal joints to get back to the centre line.

If you still can't grasp why it is a complete substitute for a conventional differential mechanism, build it and see! Even if you can agree in theory, can you visualize exactly what happens when each road wheel in turn is braked?

Incidentally, can anyone please tell me why the holes in 57-tooth Gears are a great deal larger than standard?

A B Partridge January 1977

ALAN PARTRIDGE'S COMMENTS

The above was, of course, composed, sealed and delivered to the editors before the closing date for the competition. They have now asked me to judge the entries, and a most interesting task it has turned out to be. Some modellers sent written descriptions only, and some sent rough sketches or high quality drawings. I am not, however, giving marks for presentation, only for design and construction. Let me (as with Miss World!) go in elimination order.

One entrant, not half a mile from the Editorial Office, tried to take advantage of the fact that the Gear Ring[Part 108], though a single part, has two sets of teeth. It didn't get him far! Two suggestions were to make up meshing parts with Threaded Pins and Bolt heads acting as teeth. I cannot accept these as being within the spirit of the restriction on the number of toothed parts.

Two entrants applied the drive to a long-faced Pinion on one shaft, then got to a Pinion on the other half-shaft via a Contrate. Depending on how the pivot of the Contrate is secured, the second half-shaft is either solidly driven, solidly driven in reverse, or entirely free. So that will not do. Everyone else used two toothed parts to drive some sort of cage, leaving two more to go on, or to be connected with, the half-shafts, one for each. Two entrants put Ratchets on the half-shafts and Pawls on the cage — each realized that this does not give a true differential action, and is hopeless in reverse.

The rest of the entrants (still a majority) tried to make a true reversing drive within the cage. Two put a Sprocket on each half-shaft, running a Chain from one to the other over non-toothed idlers. However, this needs the chain to have a twist or a sideways displacement, so my condition of 'conventional alignments' eliminates these.

That leaves two thoroughly sound and workable designs, each using a pair of Pinions in the cage. One design, as in my solution above, has Pinions on one half-shaft and on a shaft parallel with it. Modellers adopting this design were:

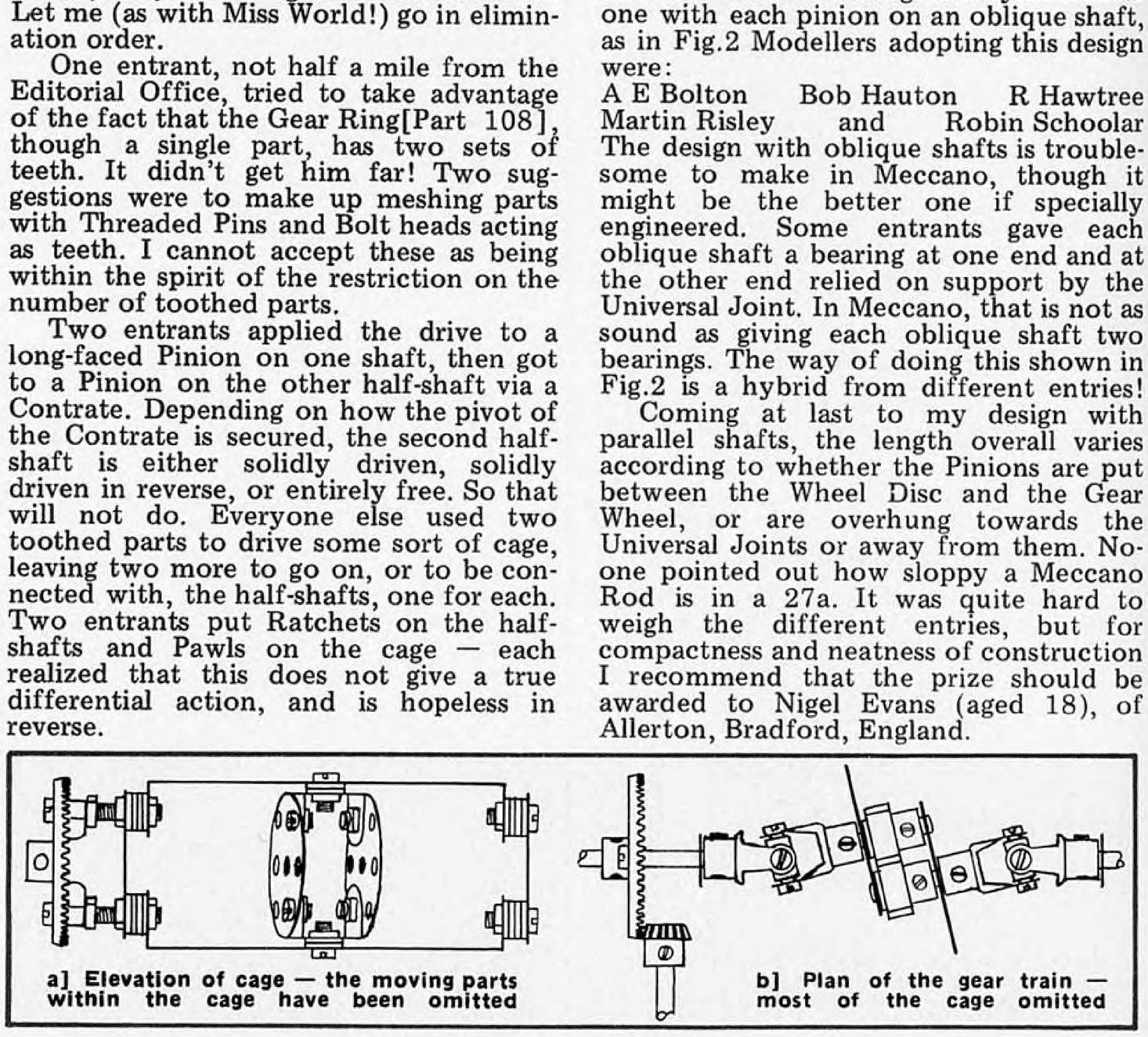
A E Bolton Nigel Evans John Nuttall
Steve Sawaryn and R G Torrent

The other basic design is a symmetrical one with each pinion on an oblique shaft, as in Fig.2 Modellers adopting this design were:

A E Bolton Bob Hauton R Hawtree
Martin Risley and Robin Schoolar

The design with oblique shafts is troublesome to make in Meccano, though it might be the better one if specially engineered. Some entrants gave each oblique shaft a bearing at one end and at the other end relied on support by the Universal Joint. In Meccano, that is not as sound as giving each oblique shaft two bearings. The way of doing this shown in Fig.2 is a hybrid from different entries!

Coming at last to my design with parallel shafts, the length overall varies according to whether the Pinions are put between the Wheel Disc and the Gear Wheel, or are overhung towards the Universal Joints or away from them. No-one pointed out how sloppy a Meccano Rod is in a 27a. It was quite hard to weigh the different entries, but for compactness and neatness of construction I recommend that the prize should be awarded to Nigel Evans (aged 18), of Allerton, Bradford, England.



a] Elevation of cage — the moving parts within the cage have been omitted

b] Plan of the gear train — most of the cage omitted

ANOTHER Mk2 JUNIOR POWERDRIVE (CRANE) MOTOR TO BE WON IN OUR NEW 'CHUFF-CHUFF' COMPETITION

As a child, did you (or do you now) ever run along the pavement with elbows at your side, hands out in front with palms facing each other and moving backwards and forwards together, proclaiming "I'm a chuff-chuff"? Well if you did, you'd got it wrong!

A pair of locomotive wheels with a horizontal connecting rod has a 'dead centre'. That is, if the connecting rod lies along the line of centre of the axles, trying to turn one wheel does not turn the other: it just jams the connecting rod. To overcome this in a real locomotive the connecting rods on the two sides are out of phase. Try (even the adults) swinging your arms like that. No — don't swing them alternately as in ordinary marching — that also gives dead centres on both sides together. They must be a quarter of a cycle out of phase, eg left elbow swinging forward past your pocket when the right hand us at its farthest forward and about to come back.

Now, could one devise some sort of linkage to be added to, or substituted for, a single connecting rod to eliminate dead centre?

The exact statement of the puzzle is this: devise a mechanism which will convert uniform rotation of one shaft into uniform rotation of a single parallel shaft by components which may have reciprocating or oscillating motion or both, the drive to act through a single point on a radius from the driven shaft by a single component acting through that point.The drive is to be positive at all positions. The mechanism is to consist of standard Meccano parts without mutilation and in conventional alignments, and no toothed part or belt drive or other frictional device is to be used.

Alan says that he has ten different mechanisms which satify the above requirements and would not be surprised if he or the competitiors find a few more, so this should be an easier puzzle than his last one. The prize, however will go to the modeller who sends descriptions of two mechanisms which in Alan's judgement show the most difference from each other.

The competition closes on December 1st, 1977.

Parts of the following supplement were originally worded for Meccano Dealers. They have been included here because of their interest to our readers)

Some names to toy with...

A SPECIAL 8-PAGE SUPPLEMENT ON TODAY'S MECCANO,

Prepared in collaboration with Meccano Ltd

Dinky

After yet another amazingly successful year Dinky, one of the top manufacturers of die-cast models in Europe, announce new additions to their already vast range of feature-filled precision models.

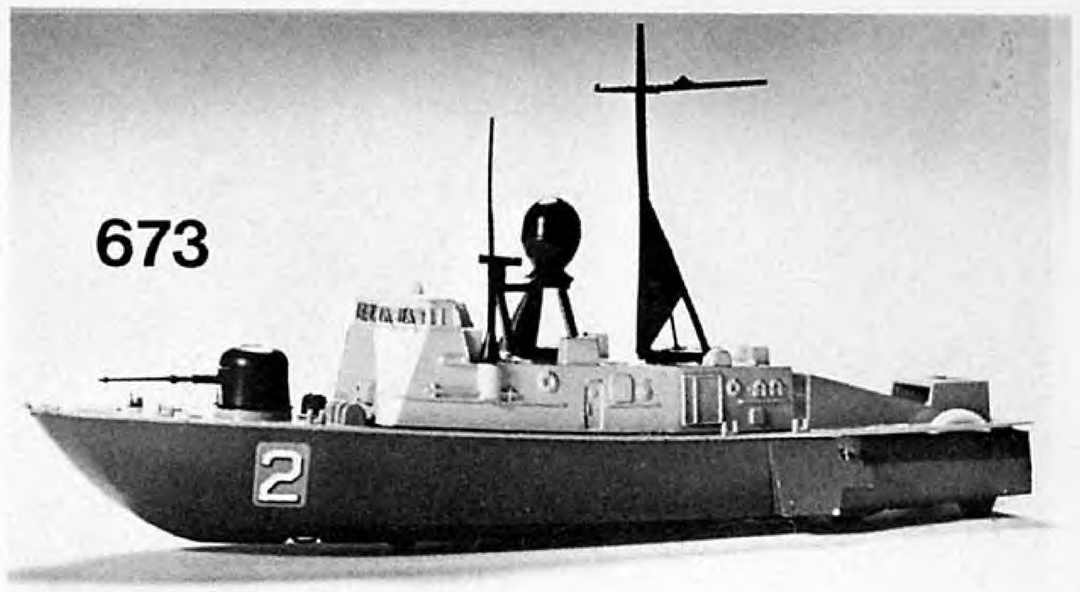
The Klingon Battlecruiser, from that ever-popular BBC series 'Startrek'. The Convoy Dumper Truck. It also comes as a skip wagon, fire rescue wagon, farm wagon and army wagon.

The Princess 2200HL. The Jaguar XJ5.3 'Big Cat' – Leyland's entry into the British racing scene. The Police Mini Clubman. The Greenline Single-Decker. The Jubilee Bus – silver painted bus commemorating the Queen's 25th Jubilee. The Volvo 265 DL Estate and many more models, all accurate to scale, packed with working features.

Dinky®
DIE CAST TOYS







Dinky TOYS NEWS

By MIKE PEDDIE

No 255 POLICE MINI CLUBMAN

This compact toy is modelled on the 'Clubman' version of the world-renowned Leyland Cars Mini, this particular version being finished in a realistic Police livery.

The toy's body casting is first-class in every way, such features as body seams, lights, door handles, radiator grille and even a petrol filler cap being clearly highlighted. Moving inside, the Mini is fitted with a life-like seat/dashboard moulding complete with a 3-spoke steering wheel and glazed windows. Additional features include Speedwheels, opening doors and a roof-mounted console complete with a dummy flasher light.

Marketed under Sales No 255, the Police Mini Clubman is produced to a 1:40 scale and measures 82mm in length. Overall finish is in an authentic shade of light blue with white doors and silver grille, bumpers, etc. 'Police' labels are carried on both doors and also on the console.

No 297 SILVER JUBILEE BUS

Of special interest is this specially-finished Leyland Atlantean Bus, which has been produced as a memento of the 1977 Silver Jubilee of Her Majesty Queen Elizabeth 2.

Based on a modern front entrance/centre exit Altantean, this beautifully-cast model reproduces the special silver-finish livery in which full-size buses of the National Bus Company will be finished – buses which, rather than being limited to one city or area, will be seen throughout Britain. Dinky have the exclusive die-cast modelling rights to the NBC livery and, in addition to the silver finish, the model carries the colourful National Bus Company emblem on each side above the rear wheel arches. Also carried on each side is the Silver Jubilee motif, together with the words, in large lettering, *'The Queen's Silver Jubilee 1977'*. In place of route indicators, at back and front respectively, are the messages *'From 1952'* and *'To 1977 Jubilee'*.

Marketed under Sales No 297, the Silver Jubilee Bus is produced to a 1:75 scale, and comes complete with glazed windows, moulded seats, and even a driver representation. For additional impact, the Bus is packed in a specially-prepared, predominantly-silver window box, which carries Silver Jubilee motifs and a commemorative message on the back.

No 430 JOHNSON 2-TON DUMPER

This instantly-appealing toy is modelled on a real-life original which is rather unusual in that it features an articulated chassis. As one would expect, the Dinky version also features an articulated chassis, and – thanks to the inclusion of an efficient ratchet system – the toy's steering angle can be set in a chosen position.

An additional and equally-exciting action feature comes in the shape of a front-mounted, large-capacity skip. The skip is pivotted, and can therefore be tipped forwards to dump any load that is being carried. For added realism, the toy also sports representations of an engine, steering column/wheel, seat and a life-like driver-figure.

Produced to a 1:32 scale and measuring 106mm in length, the Dumper is mounted on four chunky wheels. Overall finish is in yellow with an orange skip and black ancillaries, and it carries 'Johnson' labels on each side of the skip.

No 673 SUBMARINE CHASER

Although not modelled on a true-life original, this excellent model is highly representative of the type of purpose-built vessel likely to be involved in the hazardous business of anti-submarine warfare.

As to be expected from Dinky, casting detail is of the highest order, highlighting such features as bollards, winches, doors, grilles and even lifebelts. In addition, the toy also sports moulded representations of a rotating forward gun, a radar dome, a radio aerial and a crosstreed mast. Of special interest, is a spring-loaded depth-charge launcher situated on the after deck which, when a knurled wheel is turned, ejects a depth-charge over the stern in an extremely realistic manner.

Continuous fire is facilitated by the inclusion of a sloping ammunition rack, which holds six charges; when a charge is fired, the next charge automatically drops into postion ready for firing.

Being die-cast in metal, the Chaser will not, of course, float, but mobility is made possible by three miniature wheels which are cleverly concealed beneath the hull, so as not to spoil the model's clean lines.

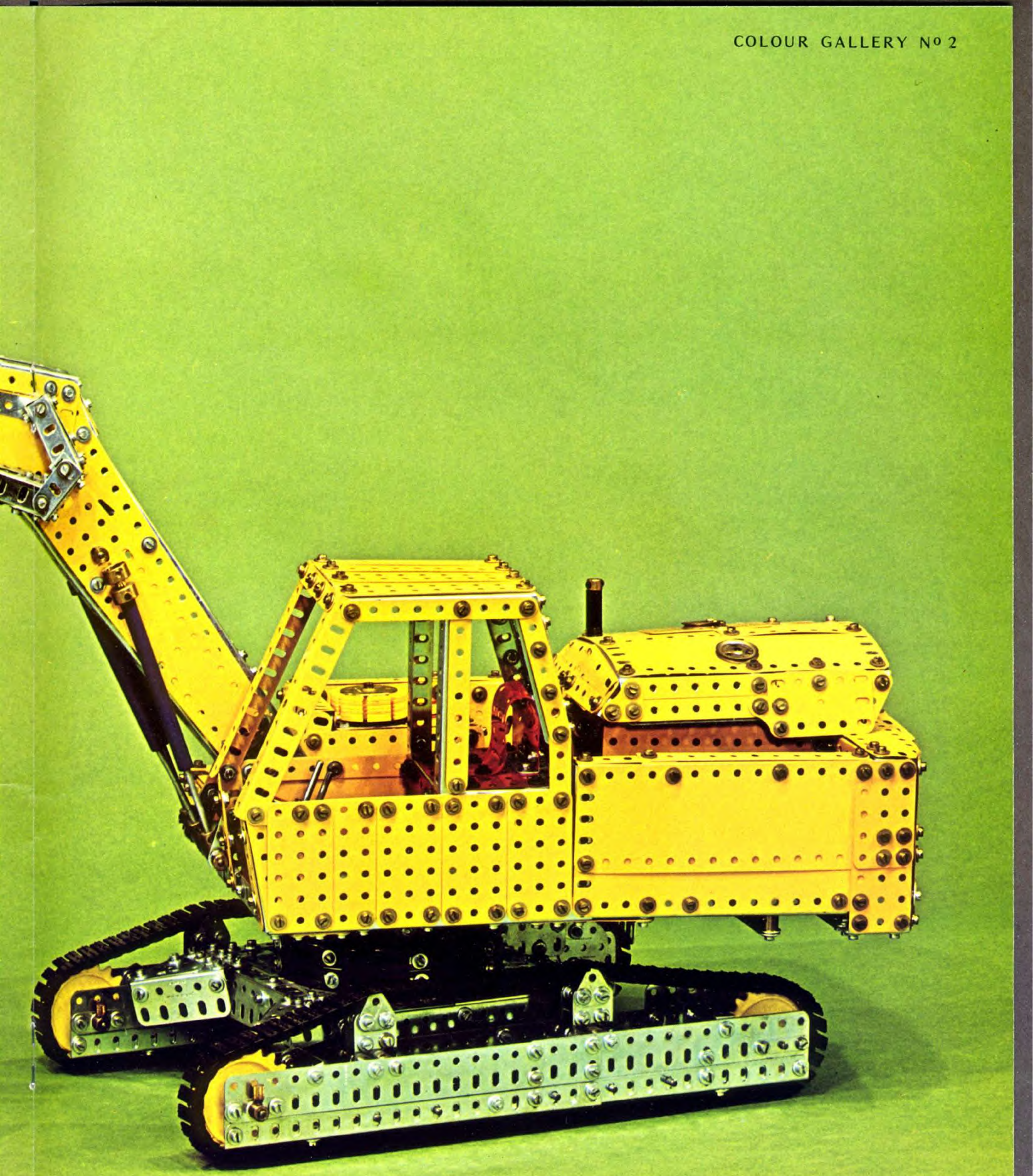
Measuring 195mm in length, the submarine Chaser is finished overall in blue-grey with a grey deck, a light grey superstructure and black ancillaries.







ATLAS DIGGER MODELLED ON DINKY TOY Nº 984 BY MIKE NICHOLLS

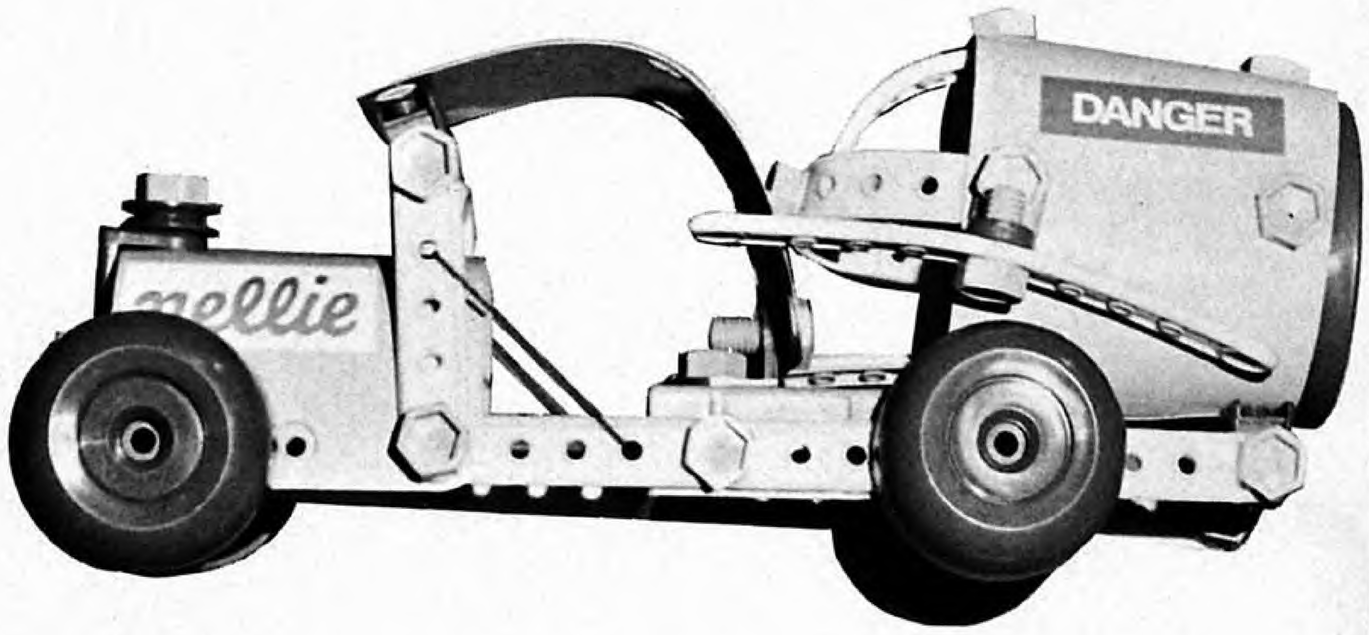


Photograph by GEORGE BUSHELL & SON, Henley-on-Thames

As was announced in January's *MM*, a complete reorganization of the Plastic Meccano system has taken place. The range now includes three progressive main sets and a 'Playpack'.

Four completely new parts (P69, P70, P71, and P92) and two sets of stickers have been introduced, and two Prima parts are included in some outfits, as can be seen from the new-sets contents list on this page.

The most striking thing about the new-generation Plastic Meccano System is the models. The introduction of a Flexible Plate and circular parts has permitted a far greater realism than possible previously.

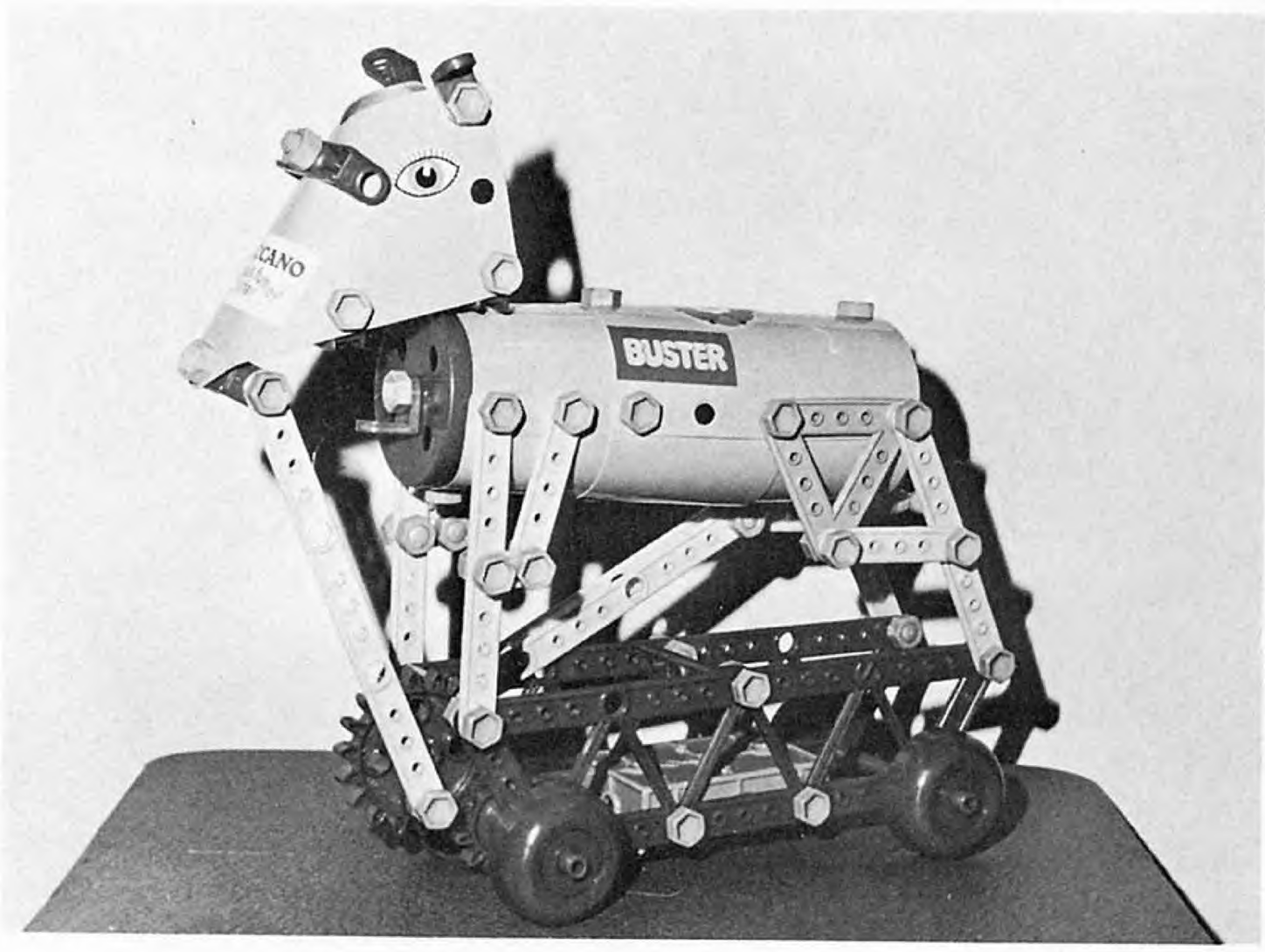


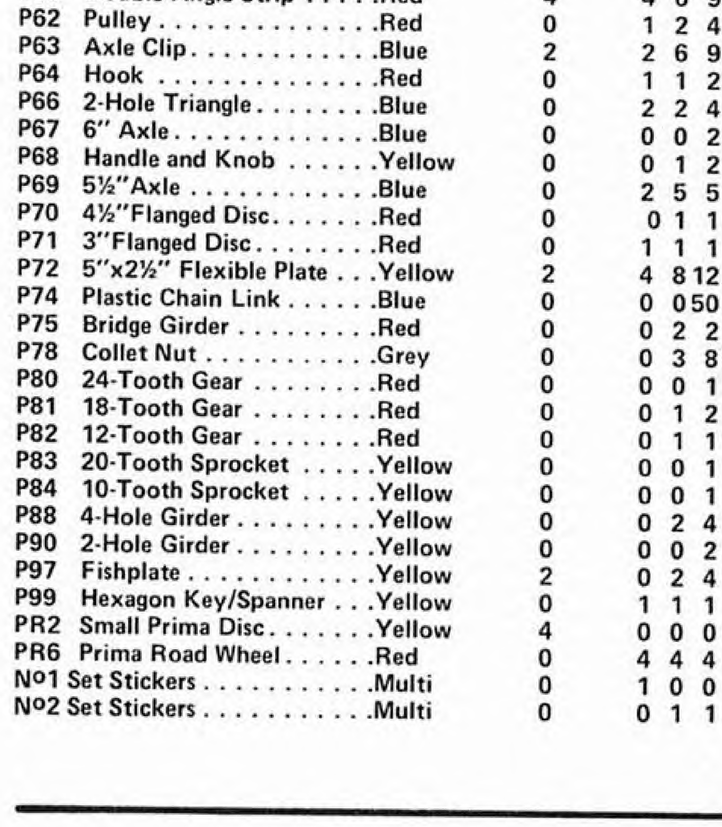
NEW

PLASTIC MECCANO

ABOVE: A Cement Lorry made with New Plastic Meccano Set 1. BELOW: A Nodding Dog made from the New Plastic Meccano Set 3

No	PART	COLOUR	P'pack	1	2	3
40	Hank of Cord	Black	1	1	1	2
P50	2-Hole Strip	Yellow	2	4	4	8
P51	3-Hole Strip	Yellow	2	4	4	4
P52	4-Hole Strip	Yellow	0	2	4	4
P53	5-Hole Strip	Yellow	0	2	2	2
P54	Base	Blue	1	1	2	3
P55	19mm Bolt	Blue	15	20	40	70
P56	25mm Bolt	Blue	5	6	10	20
P57	Nut	Blue	20	24	45	70
P58	Spanner	Yellow	1	1	1	1
P59	Angle Bracket	Red	4	4	6	12
P60	Double Angle Strip	Red	4	4	6	9
P62	Pulley	Red	0	1	2	4
P63	Axle Clip	Blue	2	2	6	9
P64	Hook	Red	0	1	1	2
P66	2-Hole Triangle	Blue	0	2	2	4
P67	6" Axle	Blue	0	0	0	2
P68	Handle and Knob	Yellow	0	0	1	2
P69	5½"Axle	Blue	0	2	5	5
P70	4½"Flanged Disc	Red	0	0	1	1
P71	3"Flanged Disc	Red	0	1	1	1
P72	5"x2½" Flexible Plate	Yellow	2	4	8	12
P74	Plastic Chain Link	Blue	0	0	0	50
P75	Bridge Girder	Red	0	0	2	2
P78	Collet Nut	Grey	0	0	3	8
P80	24-Tooth Gear	Red	0	0	0	1
P81	18-Tooth Gear	Red	0	0	1	2
P82	12-Tooth Gear	Red	0	0	1	1
P83	20-Tooth Sprocket	Yellow	0	0	0	1
P84	10-Tooth Sprocket	Yellow	0	0	0	1
P88	4-Hole Girder	Yellow	0	0	2	4
P90	2-Hole Girder	Yellow	0	0	0	2
P97	Fishplate	Yellow	2	0	2	4
P99	Hexagon Key/Spanner	Yellow	0	1	1	1
PR2	Small Prima Disc	Yellow	4	0	0	0
PR6	Prima Road Wheel	Red	0	4	4	4
No1	Set Stickers	Multi	0	1	0	0
No2	Set Stickers	Multi	0	0	1	1





We now have some more information on the new motors also announced in our previous edition.

The smaller Motor with the built-in reversing switch (No 1071) has a speed of 1 500 rpm when operated at 16-volts without load. The 1071 is 65mm high, 50mm wide, 50mm deep, and weighs 200g.

The larger 1072 Motor is supplied with a separate reversing switch, and has twin output shafts which run in *opposite directions at different speeds.* The unloaded speeds are approximately 3 000 and 1 100 rpm for the two output shafts.

This powerful Motor is 60mm high, 95mm wide, 65mm deep, and weighs 670g. The distance between the grooves of the (removable) pulleys is 89mm.



Plastic Meccano



Plastic Meccano has changed this year. New parts. New models. New packaging. And a fun sticker sheet in every box.

The new parts and models are the result of extensive research into just what children are looking for in a construction toy.

The bright new packaging means that not only will you save on shelf space but the extra point-of-sale impact of the colourful boxes ensures they won't stay on your shelves long.

Plastic Meccano. The construction toy between Prima and Meccano.

It builds big models fast.

NEW

PLASTIC MECCANO

Mogul

Nine tough toys for kids who play rough. Strong steel and die-cast models, beautifully detailed and brightly painted, yet able to stand up to the toughest treatment.

Some of the models can even have Meccano constructions built on to them.

Mogul, accepted for inclusion in the Design Centre Catalogue.

Mogul, the tough toy for tough kids.

MOGUL
STEEL TOYS









Meccano Multikit

Don't forget the Multikit Range :
Crane Building Multikit. Highway Multikit. Army Multikit. Combat Multikit.

Four sets, each with a particular theme, adding extra realism to model building. Plus the capacity to take a small electric motor so the models actually work.

Multikit. A little bit special. And every bit Meccano.



MECCANO MULTIKIT

Meccano

Standard Meccano has a new look in '77.

We've redesigned the boxes. New photography shows children playing happily with the models they've built.

Brighter more colourful boxes. Huge point-of-sale impact.

Meccano. New boxes. Old favourite.

Meccano – the growing tradition. And it's still growing. Fast.

MECCANO®
Standard Range



Prima

Prima is the Meccano construction toy for 3 to 6 year olds. And, as it's fully compatible with Plastic Meccano, it leads children naturally into the joys of the Meccano range.

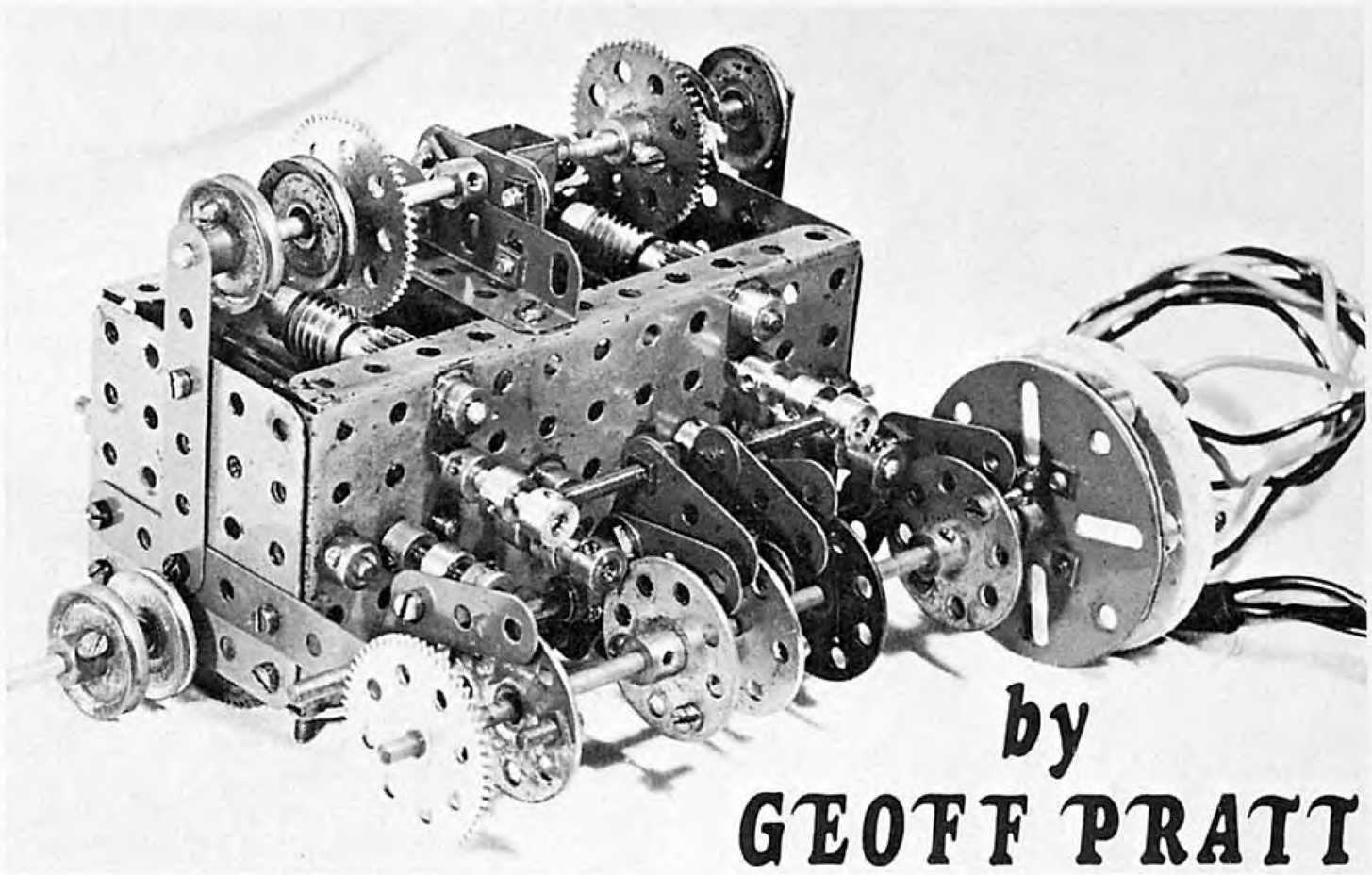
Prima is big, strong, safe, colourful, plastic pieces that slot together making toys straight from a child's developing imagination. Prima. It's learning while playing.

PRIMA by MECCANO

The Airfix Group

Meccano Limited, Binns Rd., Liverpool L13 1DA

Let Your Models Live — Part 6
TIPS on TITLES



by
GEOFF PRATT

Fig.6

The preparation of titles for the beginning and end of your Meccano film is an important aspect of your filming. A visitor to your home gains his first impressions from the appearance of the hallway, so it is important that the décor is tasteful and welcoming in order to give the right impression. In the same way — as the titles are normally the first part of a film to be seen — it is just as important that they are well presented and tastefully laid out so as to set the mood of the film. If a good impression is given at the outset, you have already captured the interest of your audience to avoid that ogre of home movies — BOREDOM! there are several kinds of film titles, the first of which is:

THE MAIN TITLE

which is the name of the film, such as *Meccano Capers, Transport in Meccano, Meccano Montage*, etc. It should have an attractive sound to it and prefereably give some indication as to the content of the film.

THE CREDITS

Commercial films contain a great many titles. Most of these are the credit titles, where acknowledgement is given to the key men and women who have worked on the film. You know the kind of thing: "Wardrobes by May Brown, Special Effects by Hope & Co, Continuity by Faith Charity", and so on. If you are working on your own, such credits will obviously not be necessary, apart from the simple "Produced by.....", which will label the film as your own work.

However, there are occasions when outside help is needed. Sometimes the help of a friend with specialist knowledge may be called upon, maybe for help with lighting equipment or perhaps with tape recording a commentary. In this case it is a nice gesture to include his name among the credits and thereby indicate that you have appreciated his help. A few amateur film makers attempt to ape the commercial films by providing a long list of unnecessary credits, such as "Colour by Kodak, Sound equipment by Sanyo, Cameras by Bolex" etc. Speaking personally, I find this pretentious and feel that it is best avoided unless a deliberate comedy effect is intended.

SUB-TITLES

These are the titles that sometimes appear from time to time throughout a film. They are a relic from the days when all films were silent and sub-titles had to be used to convey information about the story which could not easily be conveyed visually — for example, such things as dialogue, or details of time and place. Nowadays, sub-titles are used much less frequently. With the advent of sound films, the use of dialogue by the characters and the addition of commentary has reduced the need for sub-titles. They are still used however, for giving details of time and place. Also, in a composite film showing a number of different models, a sub-title can introduce each part, becoming in effect a main title for that particular part of the film.

END TITLE

As its name implies, it indicates the end of the film. Not so that the audience can all rush out before the National Anthem is played, but as a final signing off. As it is the last part of your film that the audience sees, it is important that it should be a properly prepared title, tastefully presented so that it leaves behind a good impression.

Titles are generally presented formally, by means of prepared artwork. The lettering is usually either painted or printed onto a suitable background. For the less formal title, and particularly for subtitles, much use can be made of such items as signposts, calendars, clocks, posters, etc to convey the required information. For example, in a film recording a visit to the Meccano Exhibition at Henley, a short shot of a 'HENLEY' signpost is quite suitable for indicating the location, followed by a shot of the banners over the Town Hall announcing 'Meccano Exhibition'.

As titles are intended to convey information, and the time given to them is strictly governed by how much film you have allocated to them, it follows that above all else they must be *legible*. Clever, arty titles that need deciphering are useless. They should therefore be neatly presented in a clearly readable style of lettering. The choice of style is something which depends upon the individual's own preferences, but ideally should reflect the general mood of the film. For example, a film that is presented in a humorous, lighthearted way would be best served by titles in a more casual style, possibly even with the letters arranged in a higgledy-piggledy fashion (Fig.1). A more dramatic treatment would call for bold lettering (Fig.2). A straight documentary would probably be better off with letters in a more formal, plain style (Fig.4).

MEANS OF LETTERING

If you are artisically inclined, then you are home and dry. All you will need is a brush or pen and a supply of ink or poster paint. But most of us have to rely on ready-prepared letters. There are a number of titling kits available from photographic dealers, and the most widely-used consist of sets of separate 3-dimensional white letters that are about 12mm high. They have a self-adhesive backing and can be used over and over again.

Typical brand names of the type of kit are *Presgrip* and *Hernard*. These can be stuck to any suitable hard surface and can even be taken out 'on location' to be stuck onto a sheet of glass or car window, using local scenery as a background. They are very convenient to use and are easily aligned using a ruler.

You need to rely on your eye to judge the relative spacing between the individual letters. Be careful not to use them on soft surfaces like paper, which will tear when the letters are subsequently removed. They do tend to leave slight traces of adhesive when removed, which is especially noticeable on glass. These traces are easily cleaned off with a clean cloth moistened with a little *Evostik* thinners.

Less expensive than the Presgrip type of letters are sets of letters cut out of flat plastic sheet, about 20mm high, obtainable in various colours. These adhere readily to glass or a similar smooth surface by suction, and can be re-used many times. They are more fiddly to handle than the 3-dimensional letters and you will find a pair of tweezers a great help. Again, they can be aligned with a ruler and must be spaced out using your own judgement.

Typewritten titles are sometimes useful, being compact and readily prepared. They suffer the disadvantage of being unsuitable for superimposition on a background without destroying it for further use.

Black or red typewritten titles are naturally easily obtained, but the more usual white lettering is a little more tricky. However, *Tippex* typists' correction paper (obtainable from a good stationer's) is in effect a white carbon paper. It it is interposed between the typewriter ribbon and the paper being used, a good white lettering can quite easily be obtained. The slips of Tippex paper measure only about 50mm x 20mm so are a little awkward to handle, but with a little care, quite presentable titles can be prepared.

By far the most convenient method of lettering is by *Letraset* or a similar system of dry transfer lettering. The choice of lettering style and size is really enormous, so great in fact, that you *could* spend a great deal of time choosing a suitable style. You can have either black or white letters, they are not re-usable and so are not cheap, but if you use a small size of letter, you will get a good supply on your sheet. Alignment and spacing are made easy by means of guide marks printed with each letter.

When buying these 'rub-down' transfer letters, be very wary of 'bargain' offers of old stock at much reduced prices. Old stock tends to lose its adhesive properties

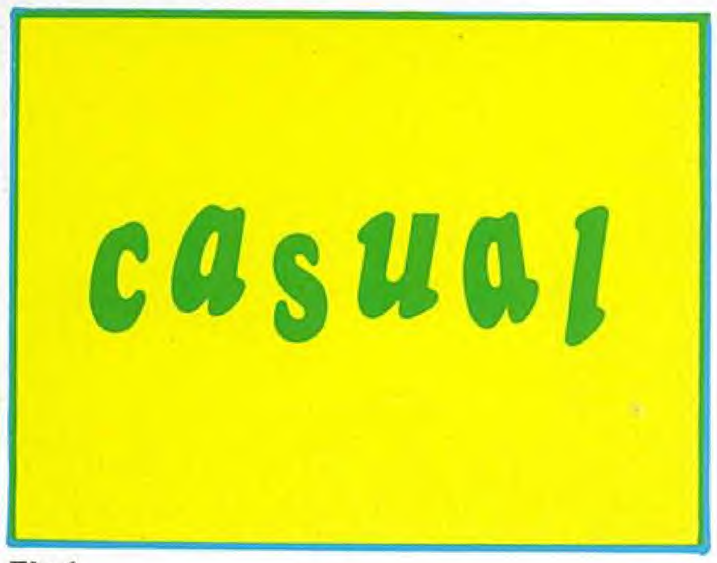


Fig.1

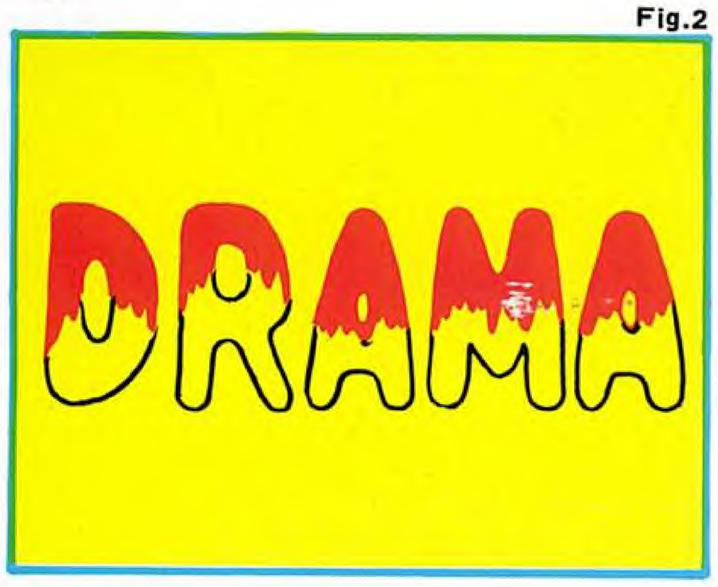


Fig.2

and you could end up with a dud sheet. Best to buy fresh stock.

BACKGROUNDS

You will need to choose a suitable background over which to place your lettering. Presgrip letters lend themselves to the preparation of titles 'on location', as described above. Letraset titles are also usually best prepared on a sheet of glass or even clear acetate sheet. This latter (sometimes known as *Artcel*) is available in various thicknesses from hobby and craft shops. It is purchased by length and needs to be cut into individual sheets of manageable size. As it is stored in rolls, it has a natural tendency to curl, so a sheet of glass is useful when filming to hold the title set-up nicely flat.

You may prefer to place your letters directly onto glass and avoid the problems with curling. Glass of course needs care in handling, but the Letraset letters

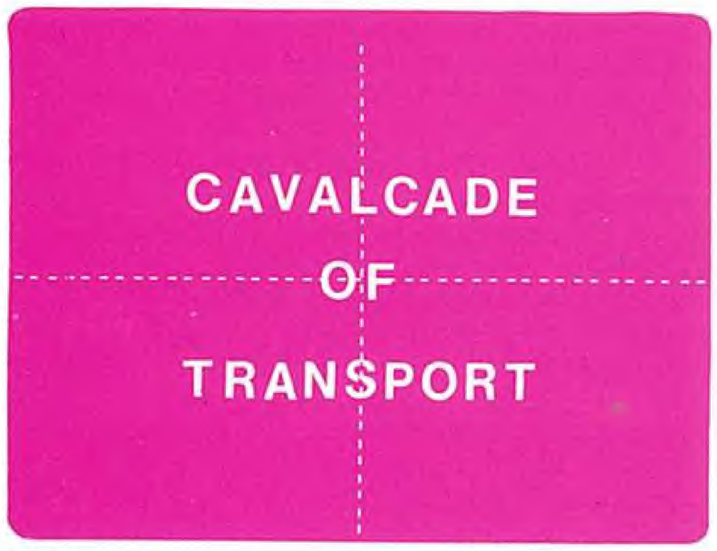


Fig.7



Fig.8

can be scraped off afterwards and the glass re-used, which makes it attractive from a cost point of view.

As to the background itself, the possibilities are limited only by your own imagination. Photographs, drawings, and paintings, a montage of cut-outs from various magazines, 'live' backgrounds, coloured paper or board — plain or textured — all are possibilities, and the choice must be yours. Since legibility is important, avoid putting light-coloured letters over a light background, or dark letters over a dark background. The letters should contrast with the background to make them stand out clearly (Fig.6). The choice of background should also be appropriate for the subject with which the film deals.

LAYOUT

A useful size of layout with which to work is about 220mm x 170mm, or if you are a particularly neat worker, you could use a smaller layout — say 120mm x 90mm. It is wise to experiment with the layout of letters over the background before finally preparing the title, to avoid wasting expensive non-reusable letters. If formal, neatly arranged wording is required, it is essential that it be arranged *really* neatly. One misplaced or damaged letter in an otherwise neat row will stick out like a sore thumb! If you find it difficult to arrange lettering in an orderly layout, you would be wise to choose a more casual style, with the letters arranged deliberately out of line (Fig.1).

Formal lettering may be arranged equally spaced about the centre (Fig.7). or — more easily — aligned down one edge only (Figs.8 & 9). On the other hand, you may perfer an arrangement like Fig.10.

It is advisable to keep your letters well away from the edge of the picture. Inaccuracies in the camera viewfinder and parallax problems (in the case of a non-reflex camera) may otherwise cause partial cut-off of the title.

Titles are filmed at close range, so what was said about close-up filming in my previous article 'Get in Close' [*MM* 1976 October p 102] regarding focus and depth of field will apply here. Parallax and inaccuracies in camera viewfinders are partiticularly evident at close range, especially in titling where you may be trying to arrange a symmetrical layout. For such work it is helpful to prepare beforehand an **alignment chart.**

ALIGNMENT OF CAMERA

The preparation of an alignment chart is simple enough, although the description of the procedure may be a little involved. The method is as follows:

1] Set up the camera in front of a white card measuring approximately 250mm x 300mm (about twice the size of your intended title).

2] Adjust range, focus and zoom so that an area of card is seen in the viewfinder which corresponds to your normal title size (say 220mm x 170mm).

3] Draw on the card in ink a red rectangle to define the exact area seen through the viewfinder. Fill the area within the red rectangle with irregular markings in pencil — anything will do, even scribblings.

4] Illuminate the card with floodlights, adjust for exposure and run off about 20 seconds of film.

5] Splice the two ends of the processed 20 seconds of film together to form a continuous loop, and lace-up the loop in the projector.

6] Project the test film image onto the original white card. Adjust range, focus and zoom so that the projected image of the pencil markings exactly coincides with the markings on the card.

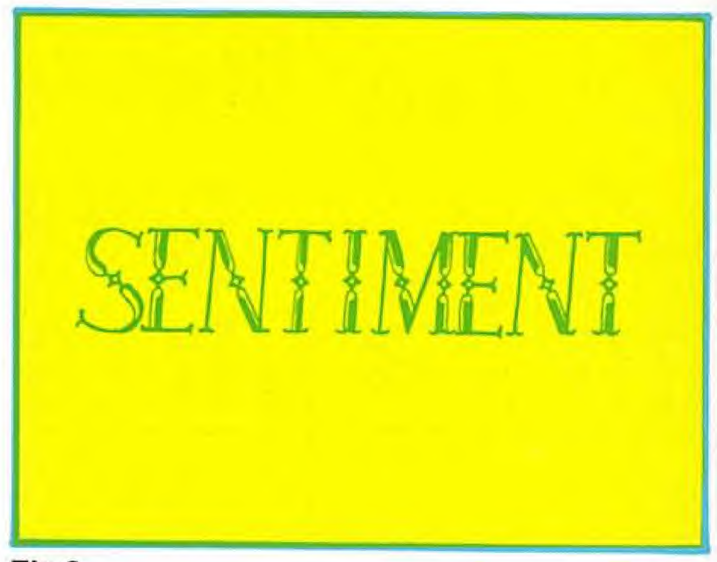


Fig.3

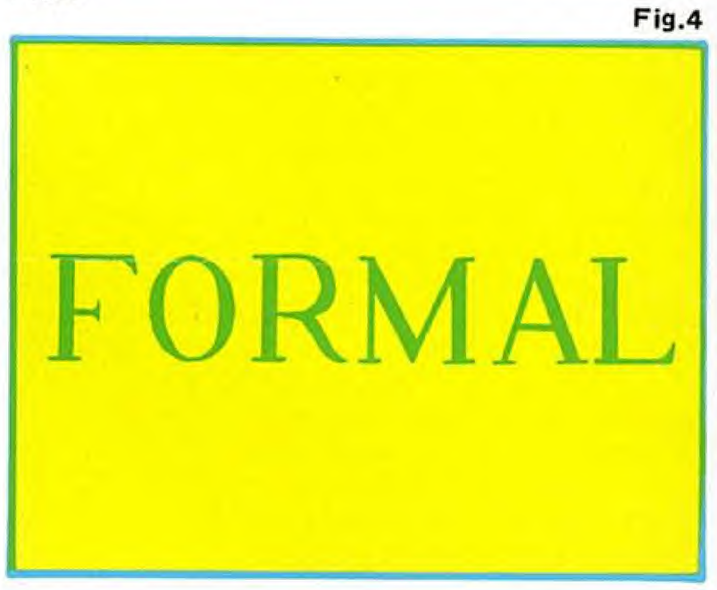


Fig.4

(This will take a few minutes to do, which is why we need the test film to be in the form of a loop.)

7] Draw on the card a black rectangle to define exactly the area of the projected picture.

It will be seen that the red and black rectangles do not exactly coincide, which is an indication of the parallax or viewfinder error in the camera, and the amount of cut-off caused by the projector gate.

8] All that remains is to trace the red and black rectangles onto a sheet of clear acetate using chinagraph pencils. The black rectangle may now be divided into quarters for guidance when laying out your titles (Fig.11).

In use, the acetate sheet is placed over your prepared title using the black rectangle and rulings to check accuracy in layout. The camera is then aligned on the



Fig.9

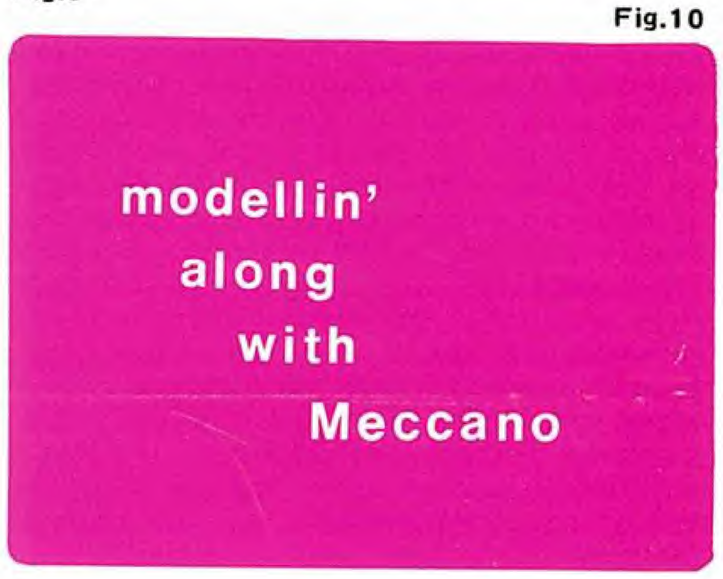
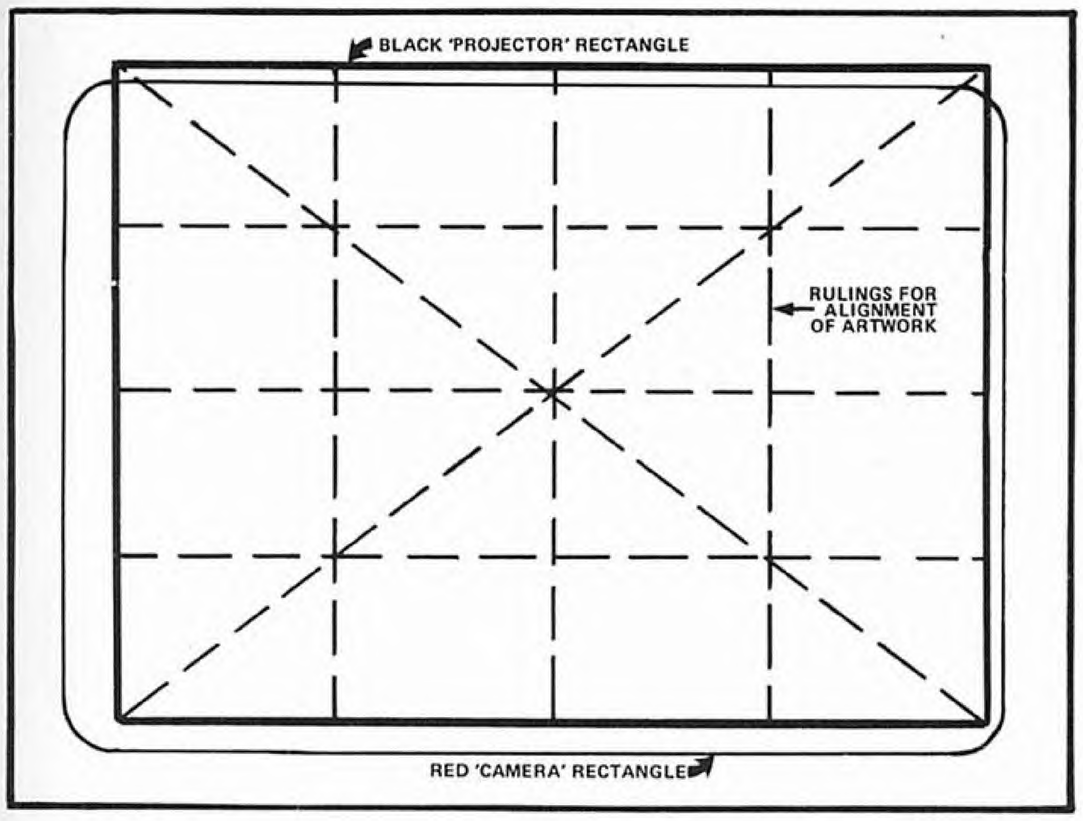
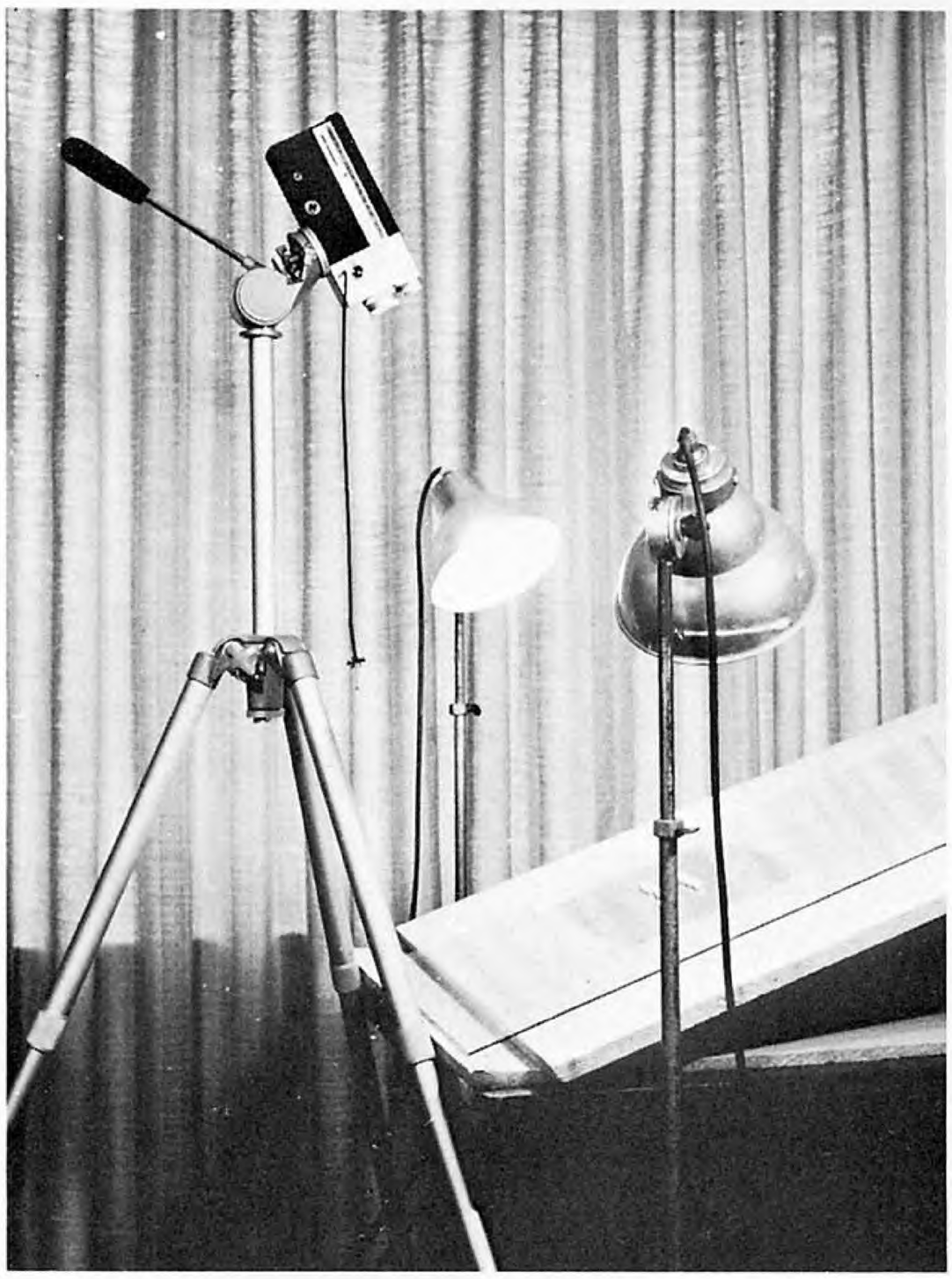


Fig.10





ABOVE: Fig.11: An Alignment chart for close-up work — ie, titling etc. Use of the chart eliminates viewfinder parallax errors.

RIGHT: Fig.5: A typical set-up for filming titles indoors — ie, without the use of a special titling stand.

red rectangle and the title will automatically be centred exactly.

SETTING UP FOR FILMING

It need hardly be said that as you are setting the camera up so precisely, it *must* be firmly fixed on a tripod. The most convenient arrangement for titling is one in which the titles are laid out flat horizontally, with the camera vertically overhead pointing downwards. This can be managed with a normal tripod if the legs are well spread out astride the artwork, which is placed flat on the floor. Make sure that the tripod legs do not obtrude within the picture area. With a modest zoom lens camera and titles measuring 220mm x 170mm you can fill the viewfinder with your title at a range of approximately 1 metre, which should be within the range of any focussing camera. Owners of non-focussing or non-zoom lens cameras may find the use of a supplementary lens necessary.

Special titling stands can be bought, but this is a luxuary even for a real movie enthusiast. A 'do-it-yourself' set-up made from wood is much more usual. But of course, Meccano enthusiasts already have to hand the means of making a rigid camera with title stand.

It is possible to film titles out of doors, but wind, and reflections of clouds in the glass sheet are a nuisance. Two Photofloods in reflectors and the use of an A-type film (colour-balanced for artificial light) indoors is the best place. Position one Photoflood on each side of the title to give even overall illumination. The floods should be placed well to the side and *not* too close to the camera, otherwise reflections of the lamps will appear in the glass. Lamp reflections can also play havoc with your automatic exposure system! Two No.1 Photofloods in reflectors at a range of approximately 700mm will give a comfortable level of illumination for a normal A-type film stock such as Kodachrome 40. The exposure will be about f4 or f5.6 at 18 fps.

If your automatic exposure control is *not* a TTL (through-the-lens) metering system, beware of false readings caused by a dark area surrounding the brightly lit title set-up. In such a case, either take a reading manually with a separate meter or place the title over a large board coloured medium grey or light brown. This will ensure that the entire area surveyed by the camera's exposure system is of an average colour density and brightness.

If you are using 3-dimensional letters, you may like to experiment with a single lamp placed well to one side. This makes the letters cast long shadows which can look very effective.

All that remains now is to operate the camera, using a cable release to avoid moving it. The duration (screen time) of each title will depend upon content. I would suggest a minimum of 5 seconds, but enough time should be allowed for a slow reading of the entire title — so longer titles may need 15 or 20 seconds screen time.



FIRESIDE FUN

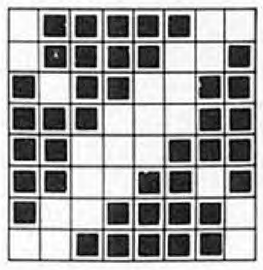
ANSWERS TO PUZZLES ON PAGE 69

MMO QUIZ

1. The Magazine was a least 9.5mm longer and it was not printed on art paper.
2. He has written several articles on the filming of Meccano models.
3. Due to a typographical error, the Single Cylinder Horizontal Steam Engine was described as Past Masrs 6 [1975 July]
4. Giangnido Servetti — NOT his father Giuseppe [1973 October]
5. Bert Love's Grandfather Clock [1973 October p62] its special feature was that it used all the parts from a No10 set.
6. 1. Mark Knowles' Vintage American Steam Locomotive [1973 April p4]
   2. Bert Love's Grandfather Clock [1973 October p62]
   3. Power Loom (Past Master 4) [1974 July p70]
   4. Mike Martin's Steam Driven Blocksetting Crane [1975 January p16]
   A total of four.
7. Roger le Rolland. Pocket Meccano Set. [1974 April p35]
   Charles Silverlock. Plastic Meccano [1974 July p62]
8. He published a 'new use' for the obsolete 167 Geared Roller Bearing, bent at right angles, and used as a book-end [1975 April p34]
9. The Steam Driven Stiff-Legged Derrick Crane SML 6a [1973 October p60]
10. A monkey (climbing). Andreas Konkoly [1973 July p39]

NUTTY CROSSWORD





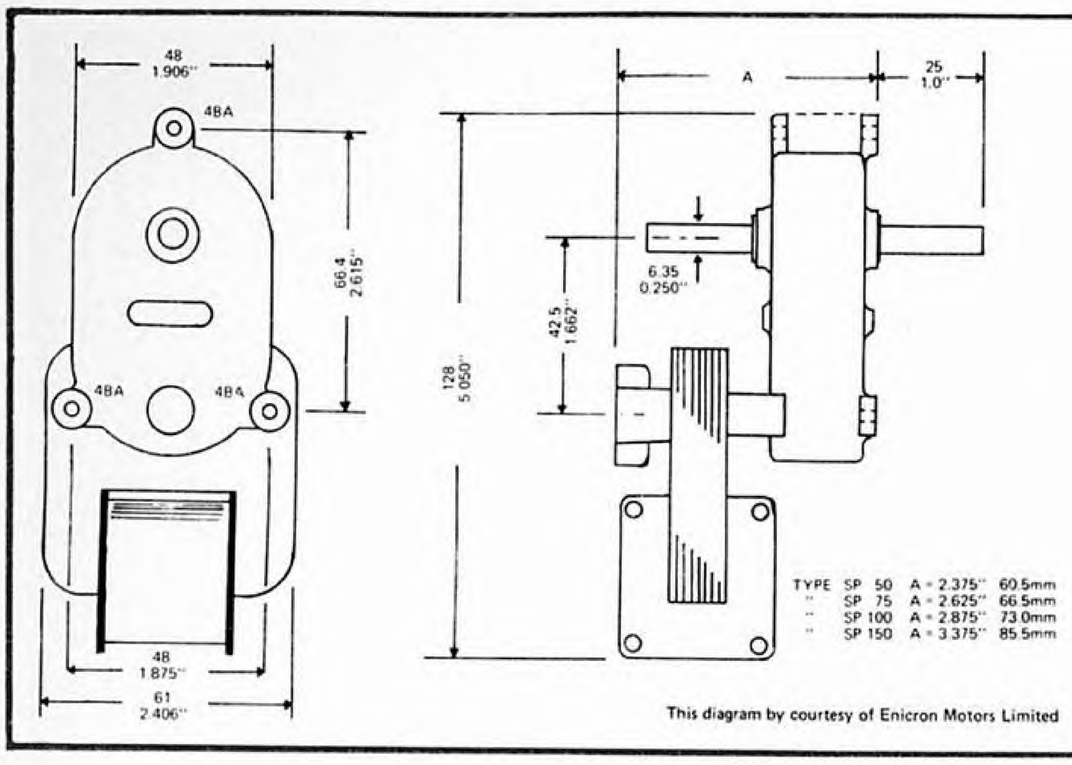
11. Ernest Chandler had his name printed as Ernest Chadler [1976 July p86] and Earnest Chandler [1976 January p24]
12. Lunar Bug constructional article [1974 July p58]
    Centre-Drive Differential [1975 July p66]

SPOT THE PART

The part came from a Primus Big Wheel Outfit. (see ME 11 1976 March p15).

PASSING THE RING THROUGH THE HOLE

Loosen the centre loop and push the ring up through it, holding the ring against the left side of the frame. Seize the double cord where it passes through the hole and pull through until a double loop appears. Push the ring through this double loop onto the right-hand side of the model. Now seize the cord at the back of the model and pull the double loop through, restoring the original position. It only now remains to slide the ring through the centre loop and the puzzle is solved.



This diagram by courtesy of Enicron Motors Limited

LEFT: General dimensions of the Mk 3 Enicron Shaded-Pole Mains Motor. Samples are found in Meccano demonstration models with 13, 19, and 25 mm stacks of field laminations — hence the variable dimension 'A'.

The ENICRON mains display-motor

DESCRIBED & PHOTOGRAPHED BY

Bert Love

ME12 1976 June/September gave excellent coverage of the French *Crouzet* mains motor chosen as a display motor by Meccano Ltd for its compactness and integral reduction gearing. When little space is available, this compact motor is very handy, but its UK counterpart, the *Enicron* 240v AC motor has its advantages.

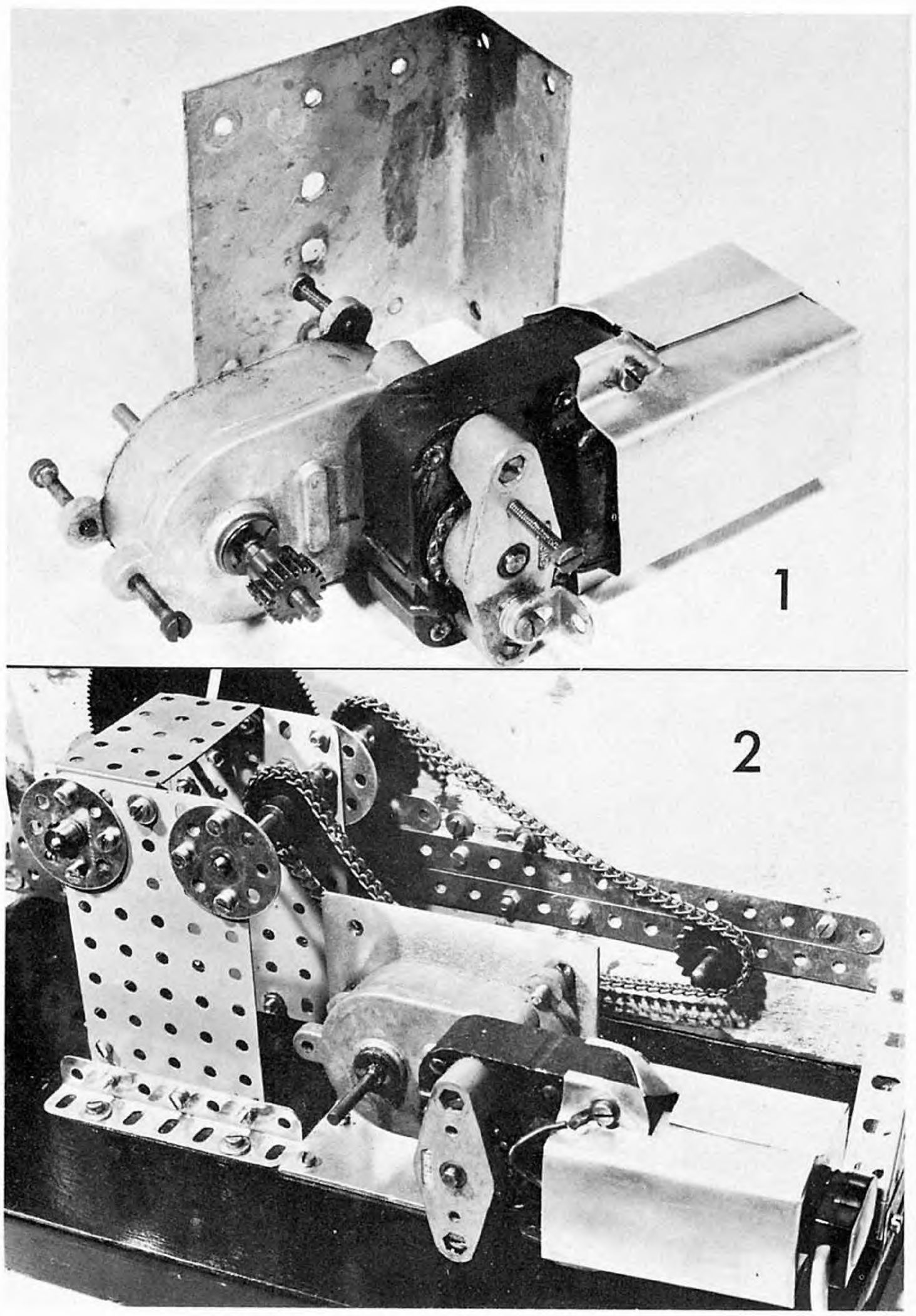
Fig.1 gives a general view of the type used for Meccano demonstration models.

The UK firm which manufactures the *Enicron* motor produces a wide variety of types and associated gear reduction boxes and spindle sizes, but the model most frequently used has a 60 rpm final output on a Meccano-size axle rod (4.4mm), with the added advantage that the shaft is double-ended.

In line with traditional British electrical engineering, the motor has its attachment points drilled and tapped to receive a 4BA (British Association) screw, and several of these can be observed in Fig.1. Because the gearbox and armature bearing block are made from die-cast alloy, the BA tappings can be easily converted to the standard Meccano thread by using a second taper $^{5}/_{32}$" Whitworth tap. The motor can then be attached to suitable Meccano structures by means of standard Bolts.

Just to the rear of the motor in Fig.1, a heavy-gauge zinc-plated steel mounting bracket of the type frequently found on Meccano demonstration models is shown. Such a mounting is shown in Fig.2, which is a fairly typical drive arrangement where the motor is mounted on one side of a demonstration board and hence hidden while the working model is on view to the public from the other side of the vertical divider. It is at once evident that the motor illustrated has the disadvantage of awkward overall length, especially when fitted with the mains socket safety shroud which can be seen attached to the rear end of the motor field laminations. This shroud is not part of the original motor as supplied, and had to be made specially at the Binns Road factory, a process which adds to cost generally.

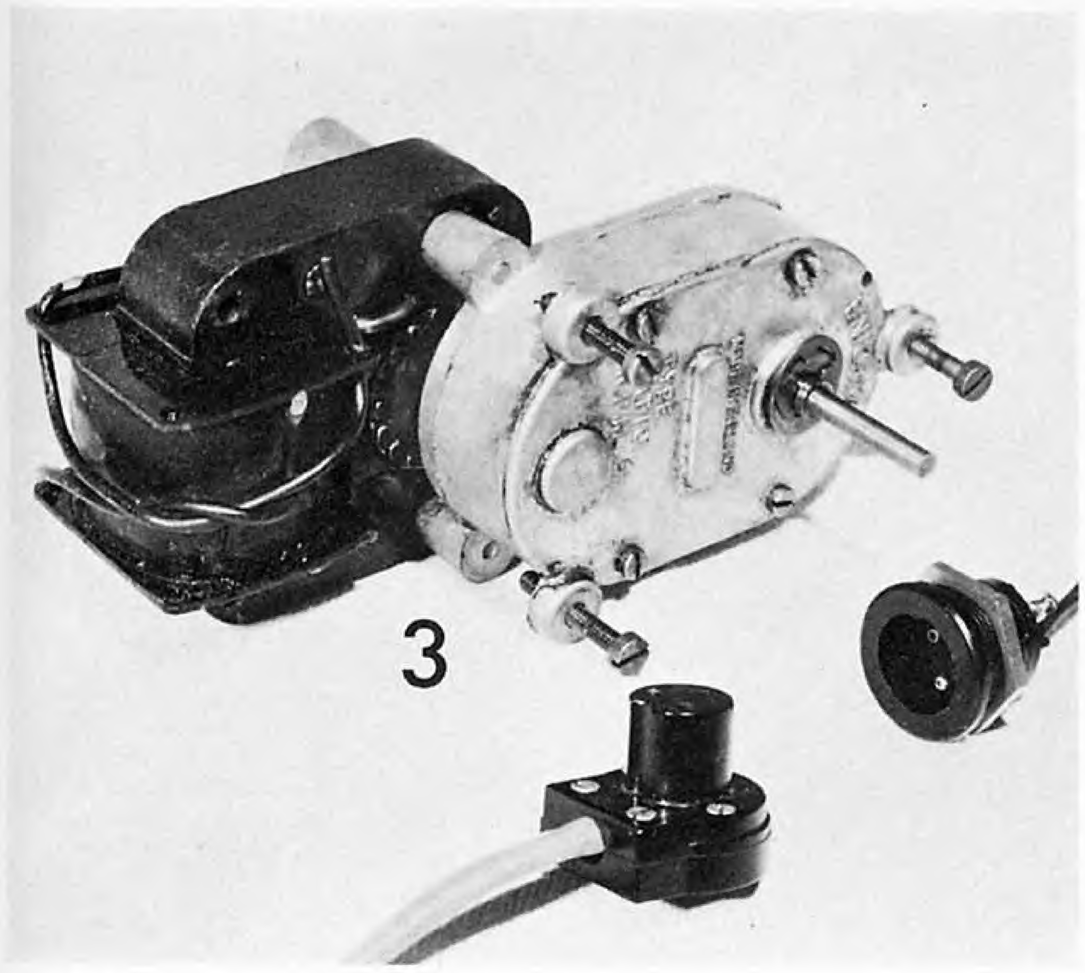
A three-pin minature safety plug and socket are used, but a certain deftness with an electric soldering iron is required to make neat connexions to this type of connector. Further details of this are shown in Fig.3, where the type of plug and socket used by Liverpool is illustrated. Fig.3 also shows the motor and gearbox viewed from another side, and the two mains leads can clearly be seen attached to the bobbin of the field coil. There is no reason why the competent constructor who is familiar with the safety requirements of mains electricity wiring should not make up a more compact connexion to take advantage of the shorter overall length.

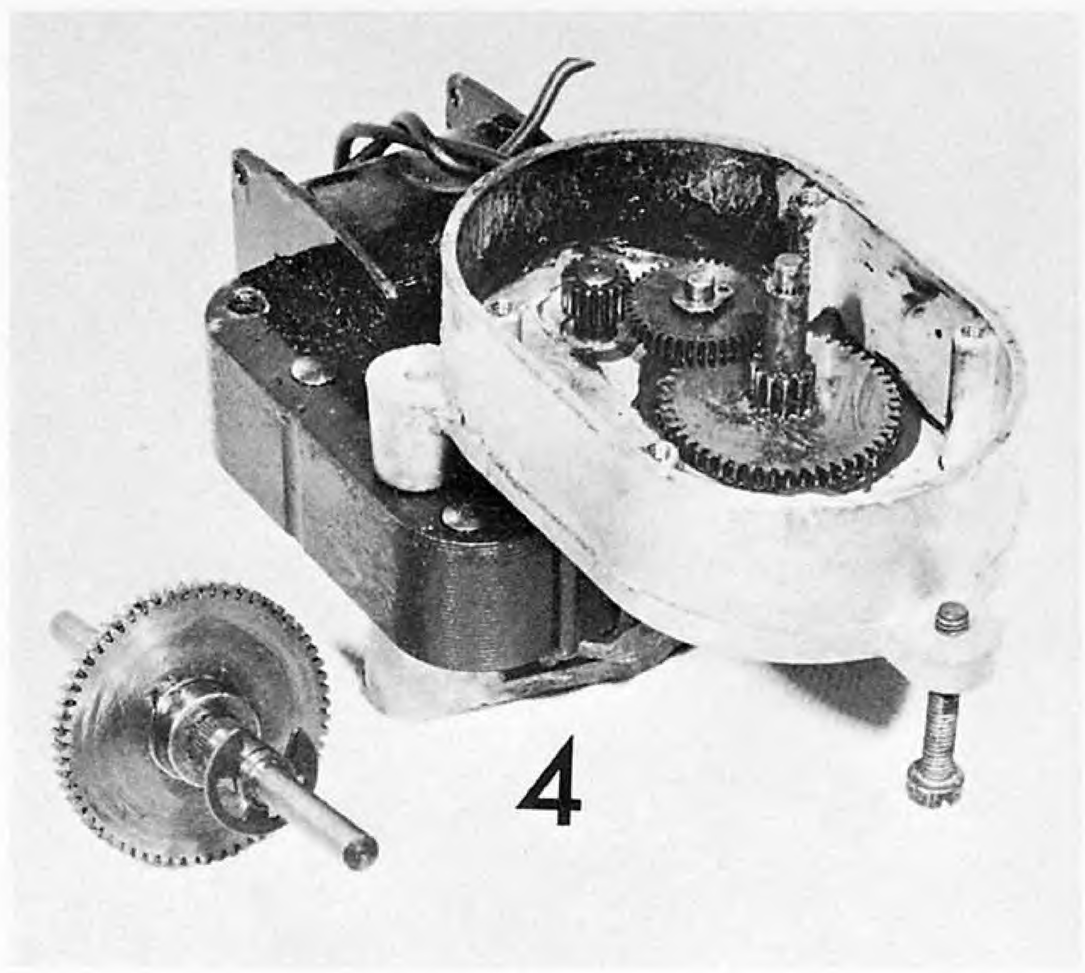


1

2

Readers may have already spotted a circlip, partially engaged on the output shaft close to the bearing bush. This circlip has to be removed before the gearbox can be opened for servicing. It should be borne in mind however, that it is better to leave well alone if the motor is giving satisfactory service. Nothing is more annoying than a circlip which takes off under its own spring power and flies across the room to become inextricably lodged in the depths of the settee or a





crack in the floorboards!

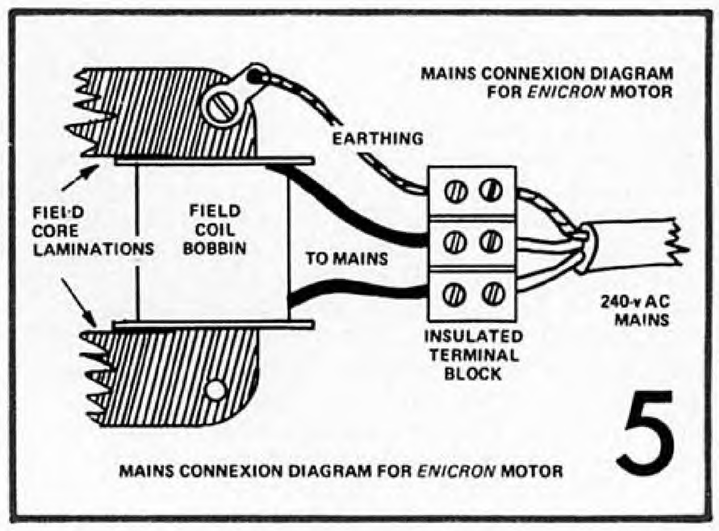
However, the *Enicron* is a versatile design, and its opened-up gearbox is shown in Fig.4. A three-stage reduction is employed using a non-ferrous fine pinion on the main armature shaft, a combined pinion/gear wheel of fibre on a short spigot as first reduction, and pinion running between internal bushings set in the die-cast casing. Heavy duty non-ferrous bearing bushes are set into the casing for the output shaft and these can be supplied in various diameters.

The complete output shaft is shown alongside the motor in Fig.4, where the final gear and one of the two circlips are clearly seen.

With such an adaptable gearbox, a large number of ratios between armature revs and that of the output shaft can be fitted to special order. In other words, the *Enicron* series of mains motors are designed for general industrial applications. — much the same as the *Crouzet* motor — and the output speed of 60 rpm and a 4.4mm output shaft suits the needs of the Meccano Model Room.

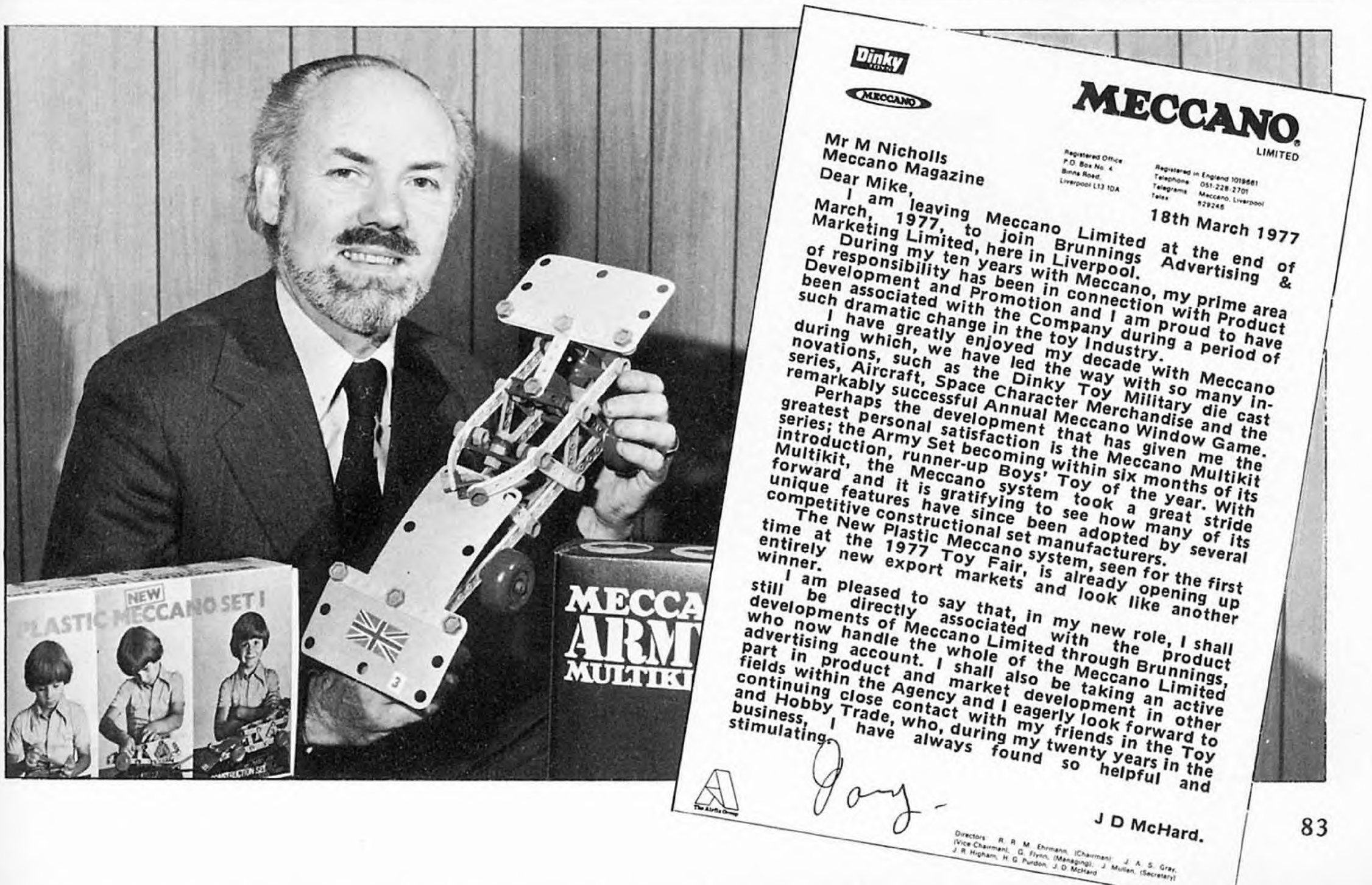
Readers may come across samples with different final rpm, larger cross-section of field laminations, and larger diameter output shafts, as the *Enicron* motors are designed to customers' orders.This is one of the reasons why the *Enicron* is not generally available as a retail item, and the firm normally supply motors only in bulk quantities in multiples of 100.

All the precautions required of the *Crouzet* motors, as published in *ME12*, apply to the *Enicron* motors in terms of mechanical and electrical isolation from probing fingures, but since the types supplied for Meccano demonstration models in the UK are wound for 240v AC, only two wires are need for connexion to the UK mains. Fig.2 however, shows a solder tag bolted to the field laminations,

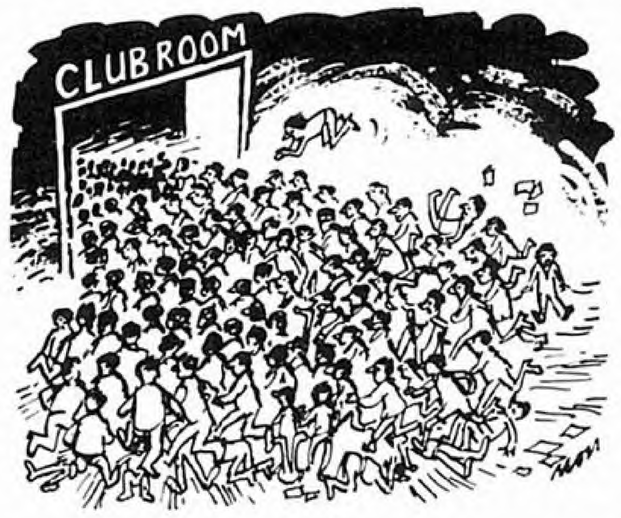


and this carries an insulated wire to the earthing tag of the three pin socket mounted on one end of the metal shroud.

If an alternative connexion method is used, the motor should be earthed via a three-core mains lead (see Fig.5).



CLUB NOTES



THE NATAL MECCANO GUILD

The first meeting in the New Year was held on the 26th January, at the University of Natal (Chemistry Faculty) and six members were present.

Edwin Hodson and Derek Spencer were unanimously elected Chairman and Hon Secretary/ Treasurer respectively. A club constitution is now being considered and members were asked to decide on building models for entry in the 1977 Transvaal Meccano Guild annual show in November. It was hoped to affiliate the club to the Transvaal Meccano Guild in the near future.

At the conclusion of the meeting Edwin Hodson presented a slide show of the Transvaal Meccano Guild 1976 show and his recent trip to Australia. Edwin's fine Block-Setting Crane received 2nd Prize in the Crane section at this show, whilst another keen member — Bill Ruddings — received First Prize in the Construction Equipment Section with his detailed Pile-Driving Vehicle.

Discussion then centred around the base section of Edwin Hodson's Block-Setting Crane and Malcolm Pfotenhauer's (incomplete) Orrery.

Meetings are to be held on the last Monday of every month, and prospective members should contact Derek Spencer at the following address.

Derek Spencer 6 Westcott Road, Westville 3630, Natal Republic of South Africa. Tele: Durban 821001 (evenings)

SOLENT MECCANO CLUB

The solent Meccano Club is nearly a year old, and is now firmly established with a current membership of 18.

Arrangements for our first Club Exhibition to be held in Waterlooville on Saturday 16th July 1977 are well under way. A notice giving details of the Exhibition appears elswhere in this issue and a cordial invitation is extended to other Clubs and individual modellers to attend and display their models.

The 12th meeting of the Club was held at Twyford on Tuesday 8th February 1977.

A number of models have been shown by members at recent meetings; Tony Randall's latest super model, as yet unfinished, is an impressive Hymac 580C Excavator, the bucket arm of which is operated by very unorthodox means.

Chris Goodwin demonstrated his model of a 1920 Charron-Laycock 7.5kW [10 hp] Coupe, which incorporates a very smooth gearbox and differential, and a true-to-type transmission brake.

Tony Knowles brought along a Battleship, in original parts, from the 1914 No 4 Manual, and a number of delightful Meccano figures such as a Lady Skater, and a Workman with Pneumatic Drill, which have been illustrated in Manuals or the *MM* over the years.

Charles Harrison uses a motorcycle to attend meetings; he has therefore been unable to bring along his present massive model, which is an unusual type of bridge: rumour has it that even getting it out of his house when finished will present some difficulty!

The Hall brothers, Robert and Stephen, displayed a Table-top Blocksetter, based on Michael Martin's fine model published in the January 1975 *MMQ* but powered by a Motor-with-Gearbox. They also showed a freelance Lorry with detailed chassis.

Brian Williams, 7 Thorndike Road, Maybush, Southampton, SO1 6FN, England.

CHRISTCHURCH MECCANO CLUB

Recent meetings of the Christchurch Meccano Club have been very successful, with competition very keen amongst the members. We have had many exhibitions, and one which was held at a Building Centre in August ran for a fortnight.

Meccano was featured along with other Hobby Clubs. By the end of the fortnight, over 25000 people saw it, and it was all such a success that we have been asked to exhibit again next year.

Members are again planning more and different models to build. The Club has also been on Television again — on a special programme which should be screened in the middle of September.



Walking Dragline by MAURICE EVANS, Dump Truck by KINGSLEY BURRELL

I think that our Club could be about the oldest in existence, and promoting Meccano and the Meccano Hobby has always been our main aim. Our biggest problem out here in New Zealand is extra parts, and this is overcome by lending amongst members and writing to stores in England.

We have the Meccano Club Meetings announced over our Local Radio Station and have gained new members through this. Our Christmas Breakup was very successful with over 35 in attendance; we had a Barbeque tea and an outdoor prize giving, and a good time was had by all.

Bob Boundy 53 Greendale Avenue, Avonhead, Christchurch 4, New Zealand.

SOUTHERN CALIFORNIA MECCANO CLUB

The Southern California Meccano Club held its Winter meeting on Saturday, January 8, 1977, at the residence of Keith LaBon in Garden Grove.

The Club welcomed seven new members. We were fortunate enough to have J J van de Ploeg of Belvedere, California and W B Holland of Atlanta, Georgia, being able to be present. We have had inquiries about the Club from Canada and throughout the United States. In order to assist other Meccanomen, we have opened membership to all those interested.

At the meeting, Keith LaBon compared current Meccano parts and model building techniques with other current metal construction sets such as Marklin, Stokys and Trix. J van de Ploeg, demonstrated an epicyclic gear transmission and a spur gear differential for an automobile model that he is now constructing. Afterwards, Keith La Bon showed the members his very fine H0 gauge model train layout.

The most recent meeting of the Club was held on Saturday March 26, 1977.

Anyone interested in the Southern California Meccano Club should contact the Secretary. Clyde Suttle, 6062 Cerulean Avenue, Garden Grove, California 92645. USA. (714)-892-0602.

NORTH EASTERN MECCANO SOCIETY

The January meeting business included the assessment of the NEMS Exhibition last December. We were pleased to have Geoff Wright, Bert Love and Alf Reeve visit out first public show in person, the show will certainly be an annual event from now on. Though this year's show would be in October or November.

Most of the models which were shown at the Exhibition were dismantled over the festive season, a fact of which the array of models at the first meetings in the year displayed positive evidence. At the January meeting, Joe Etheridge demonstrated an intricate Tele-Printing Machine which was fascinating to watch in operation. Brian Reay presented one of his unusual models in the shape of a Mechanical Man hammering with vigour, and motivated by a gearing and cam system below the platform on which it stood. Raymond Stephen showed a Heavy Front-Wheel-Drive mechanism that would form part of his latest creation in the shape of a Six-Wheeled Breakdown Lorry. Frank Beadle displayed a machine for rotating Nuts and Bolts. Other members were busy with models partly built or too large to transport about in cars!

Ellis Dudley from York was welcomed to his first meeting in January, which makes our catchment area roughly a circle of about 160km (100 miles) in diameter.

The Junior Section was still foremost in the minds of the adult members, but a regular meeting place was left in abeyance until suitable premises can be found. A Newsletter was to be circulated to all Junior members to keep them up-to-date with activities.

The February meeting saw a vast display of models, including no less than four Meccanographs. Barry Wilkinson demonstrated three of these, a Konkoly Guillouche Machine, the Super Designing Machine from the 1965 *MM* and a motorized Spirograph. John Lythgoe showed an advanced version of the Super Designing Machine, until the room was suitably littered with intricate patterns from all four.

Chris Barron demonstrated a Priestman Mobile Crane in very compact form, Frank Beadle showed a model of Locomotion No 1, whilst Joe Etheridge presented an unusual model of a Stage, with entertainers playing the piano and dancing.

David Dalton was welcomed to the meeting as a new member in a year in which we look forward to being happy and busy.

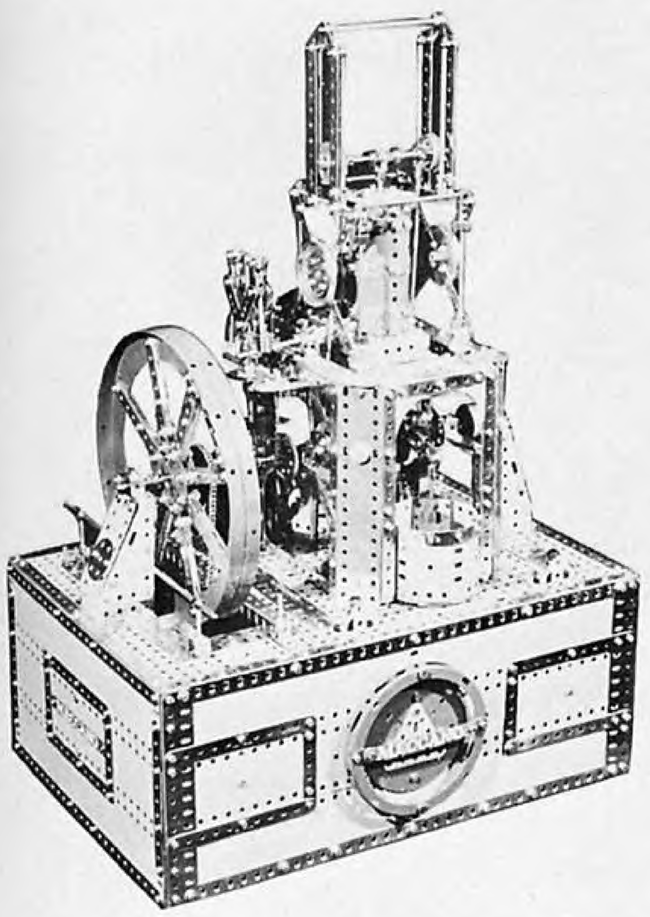
Frank Beadle 'Greytiles', Yoredale Avenue, Darlington, DC3 9AN, England.

HENLEY SOCIETY OF MECCANO ENGINEERS

The January meeting of the Society was of exceptional interest. We were most fortunate in having Donald Franke (who will be well known to erstwhile readers of the *Meccano Engineer*) to give us an illustrated lecture on the history and technique of animated cartoon making. We saw illustrations of cave drawings many thousands of years old, in which an attempt to reproduce continuous movement could clearly be perceived; we examined a Victorian Zoetrope; we were convulsed with laughter by screenings of early comic cartoons; and we had a comprehensive insight into the mysteries of the Multiplane Cartoon Animation Rostrum; construction of a version of this latter item, partly in Meccano, has been something of a life's work for Donald [see *ME10* 1975 December] The infinite trouble he took in preparing the talk, the excellent way he imparted his wide knowledge of the subject, and the many excepts from the films themselves, added up to an evening of entertainment which those present will long remember.

The March meeting, by contrast, was devoted to informal 'chin-wagging' over the comprehensive display of models present, and it was decided that the next meeting date should be May 28th. A provisional programme of coach trips to club meetings, exhibitions, and places of engineering interest has been drawn up for 1977, and non-members are welcome to join us on these. A booking form giving full details is available on receipt of a request with stamped addressed envelope to the undersigned.

Geoff Wright, 165 Reading Road, Henley-on-Thames, Oxon, RG9 1DP, England.



David Whitmore's Maudsley's Table Engine based on the model in the Science Museum, London, England. The model seen here has been re-designed by David to come within the scope of a No10Set. The original version is illustrated on p252 of ME10 (1975 December).

Secretaries of Meccano Clubs are invited to submit reports (and photographs if possible) for inclusion in these pages.

Reports should be approximately 350 words long, and addressed to the editor — see p51.

We apologize for the late publication of this edition which has caused these Club Notes to appear long after the meetings reported.

SOCIETY OF ADVANCED MECCANO CONSTRUCTORS

The Autumn meeting of the Society of Advanced Meccano Constructors was held at Hall Green Baptist Church, and an excellent variety of models was on display. A semi-formal atmosphere ensured adequate time for the inspection of the members' efforts which ranged from enterprising combinations of Meccano Multikits in novel form, to No 10 Set models specially designed for Meccano Ltd's 'Meccano 75'.

Pat Briggs came up with another 'first' in Meccano clock mechanisms displaying his compostie multi-sprocket gear for selecting prime number ratios not available directly from standard Meccano gears [see *MM* 1977 Jan p17]. Roger Wallis displayed his No 10 Set-design Leyland National Single Decker Bus on a tilted cradle fitted with a mirror on the baseboard to demonstrate the automatic gearbox and remote steering.

David Whitmore's Table Engine — illustrated here — based on a Science Museum model of Maudsley's original, was re-designed by him as a challenge to be built (very successfully) from the contents of a No 10 Set. This model was chosen by Meccano Ltd, as their star attraction at the National Exhibition Centre International Toy Fair. Additional backing to the Meccano campaign was provided by a range of eighteen demonstration models, built, refurbished or designed by the Secretary, who exhibited half of them on the stage at the club meeting. The whole set have been circulating throughout Meccano dealers' shops in the Midlands during the October to January shopping season.

Apologies were received from Jim Gamble, and Eric Jenkins who is now recovering after a long illness — making full use of his Meccano of course during an extended convalescence. Overseas members sent in their fraternal greetings and they have continued, like their UK fellow members, to send in much useful material for passing on to the *Meccano Magazine*.

B N Love, Hon Sec, Society of Advanced Meccano Constructors, 61 Southam Road, Hall Green, Birmingham B28 8DQ, England

SOUTH EAST LONDON MECCANO CLUB

Owing to the cramped conditions of our first meeting (held in my house) we decided to hire a room connected to the St. Luke's Church Hall, Eltham, for our second meeting on Saturday 16 October 1976. That particular afternoon a jumble sale was taking place in the main hall so we took the opportunity of advertising ourselves. Because of this we gained one new member in the shape of twelve-years old Richard Greenshield.

Adrian Ashford brought his now complete Brighton 'Baltic' of the London, Brighton & South Coast Railway. It is fitted with a working outside Walshaert's valve gear, driving inside valve spindles through rocking shafts and pendulum levers. An electronic speed controller linked to the regulator handle varies the speed of the Motor-with-Gearbox driving the main wheels. Also included is a working hand brake, dummy springs, and a dummy weir pump and Westinghouse brake pump.

Peter Clay's model will be a Motor Car Chassis when he completes it. It has leaf-spring suspension at the rear with telescopic shock absorbers and whishbone suspension at the front. Also completed is the differential. When finished the model will have a detailed engine, 3-speed and reverse gearbox with gatechange, clutch, Ackermann steering, rear brakes, handbrake, working accelerator and adjustable driver's seat.

Geoff Davidson brought a clockwork traction engine based on the model in the October 1949 *Meccano Magazine*.

Charles Yearsley's model was based on the London General Omnibus from page 55 of *Model Building in Meccano* which makes extensive use of the old type of Braced Girder. The floors are black Elektrikit Plates. The model has a differential and steering but is still in the course of development.

My model was an 1891 Portsmouth Corporation Electric Tramcar. It is powered by two Motors-With-Gearbox which drive the four wheels. The model is uncompleted but so far has interior seating and one of the staircases built. When finished it will have upper deck seats and will run on Angle Girder track.

We have now decided to hold meetings on the last Saturday of every third month (where possible) and our third meeting, held on Saturday 29 January at 2 pm, was the best to date with twelve out of thirteen members present.

Geoff Davidson showed a Giant Dragline based on the pre-war Supermodel No 27, but using two Motors-With-Gearbox instead of the original Motor. He also showed a Warehouse lift from the October 1975 *MMQ*.

A part-completed Walking Dragline based on the December 1952 *MM* model was brought by Peter Clay. The roller bearing has been redesigned and the flimsy internal framework replaced by girder 'A' frames. Walking and slewing is powered by a E15R Motor.

Stan Bedford brought along plans of his next model: the Listowel and Ballybunion Railway Locomotive Trestle Monorail. The plans were photocopied from original drawings dated January 1886 and December 1887 obtained from the Hunslet Engineering Co in Leeds.

Steven Ripper showed a Schneider Trophy-type Racing Seaplane and Tractor. The seaplane was based on the No 5 Set model from the 1954 leaflet, but converted from monoplane to biplane.

Adrian Ashford brought two models. A Brighton 'Baltic' 4—6—4 Tank Locomotive mentioned above, and a 'Ding-Ding' Tramcar as described in the November *MMQ*. Adrian built a much more realistic body of his own design for the latter, and the model runs on obsolete Hornby 0—gauge tinplate track.

New member Richard Whitmore showed a German 88mm Flak Gun which could be used as an anti-tank or anti-aircraft gun. The model manually reproduced all the operations of the original except the firing!

My model was an 1891 Portsmouth Tramcar powered by two Motors-With-Gearbox completed since the last meeting.

Other models shown were as follows:

Richard Greenshields	Cliff Railway Carriage designed to traverse a slope of about 30o
Neil Bedford	Traction Engine based on No 5 set model.
Charles Yearsley	Three motor vehicle mechanisms and also an old No 2 Clockwork Motor with Circular Saw

Also present at the meeting were new members David Whitmore and Graham Davies.

The next meeting will be on Saturday 21 May at 2 pm. Anyone interested in joining please contact me at the following address.
Christopher Warrell, 41 Beechill Road, Eltham, London, SE9 1IJ England.

HENLEY SOCIETY OF JUNIOR MECCANO ENGINEERS

Due to a lack of interest and participation from some of our members, the HSJME has been facing a crisis over the last six months or so. However, we are overcoming this: what we have lost in terms of numbers can be made up by the dedication of those remaining.

Now to recent events: on Saturday 12th of March we held a meeting at the Sacred Heart Church Hall in Henley-on-Thames. The centre point was a talk given by Mike Nicholls entitled *Man in the Universe*, it covered a wide range of topics from why man's thumb makes him different from the rest of the animals, through a summary of evolution and natural selection, to why man went to the Moon, and some of the principles of astronomy. It was a very entertaining talk accompanied by slides, quick sketches on the board by Mike, and Paul Smith standing for minutes at a time holding a large board on his head to demonstrate an eclipse of our sun which also happend to be shining on the projection screen!

A number of models was shown at the meeting: Ian Henwood brought along part of a Telescopic Jib that he is building as an alternative superstructure for his Lorry-Mounted Crane. It had 3 sections — each about 600mm long — which were extended by one Motor-With-Gearbox. Peter Roberts had built the Dockside Crane from the Crane Multikit, and he ran it during the meeting. Paul Eddington brought two vehicles that he had made, one was a 'Mounted Howitzer' in Army Multikit parts, and the other, a Vintage Rolls Royce which he had built from standard Parts. I showed a rather grizzly Gilloutine which I am in the process of making, and adult guest Bob Faulkner showed us his wonderful little 'Money-Grabber'which used a Mk 2 Junior Powerdrive (Crane) Motor. This was very popular and aroused a lot of interest.

The competition set for this meeting had been for the best military simplicity model. Tim Ball — the Club Secretary — won this with a very small tank made from a Coupling. The Competition for the next meeting was decided upon: it is for the Crane with the best own-weight to maximum-load ratio. Michael Drinkwater, 'Tall Trees', Littlewick Green, Maidenhead, Berkshire, England.

STEVENAGE MECCANO CLUB

This is our time of the year for re-ferbishing our faithful and favourite models, and building new ones for the coming summer exhibition season. This leads to a fair bit of head scratching on club nights, and a shortage of some of the fancier parts.

On the 25th of January, our Secretary, Dennis Higginson, visited the National Toy Fair at the Birmingham Exhibition Centre as the guest of Bill Stanley, the friendly neighbourhood hobby-shop proprietor, and his wife, Pamela, and took the opportunity of chatting about recent Meccano and club developments with Doug McHard and Chris Jelley.

On the 12th of February, eight SMC members, including Neil Alston, Dick Barton, Peter Randall and Dennis Higginson were to be found at the Watford HRCA meeting, admiring, swapping, trading and acquiring Hornby train equipment. They were particularly impressed by some of the antique but immaculate items on display.

Nicholas Goldfinch has been designing and building gear mechanisms recently for his cub-master father to use in the instruction of his pack.

On the 16th of April, the Stevenage Meccano Club will descend on the RAF Museum at Hendon, the first of several outings to be arranged in search of inspiration and cultural elevation, and, of course, fun.

Dennis thought that *MM* readers might welcome a lowdown on the four SMC group leaders, so here goes:

Peter Brown leads group A, very appropriately, as he became member No 1 in 1969, when the club was formed. He is a technical adviser to the Stevenage education department and, as the club's electronics boffin, gives lectures on this subject to members of his own

and other groups. He has contributed some excellent models to club displays, his most recent magnum opus being a controllable Dalek. His extensive collection of Meccano advertising literature usually forms a backdrop to his display models.

Group B leader is Neil Alston, who works for the GPO. In 1974, he added SMC membership to his other activities which include singing with a Letchworth male voice choir and collecting model railway goodies as a member of the Hornby Railway Collectors Association. Neil also puts in a lot of time helping the partially-sighted, his son Neville being one of their number. Neville and his brother Clive are members of the SMC, a fine example of family membership.

Group C has the youngest leader, Stephen Kuc, 16 and still at school. Stephen joined the club in 1971, since which time he has been diligent in attending meetings and supporting all the club displays at fetes and other events. Stephen's numerous simplicity models are a talking point wherever they appear, and have been known to catch Chris Jelley's eye. Stephen's other main hobbies are cycling and helping the club Secretary, Dennis Higginson and his wife Gwen with the Housebound Library Service for the Stevenage handicapped who cannot get along to their local library. Another SMC member, Adrian Ogden, also helps in this work.

Leader of Group D is your humble scribe, whose Meccano preferences are for rigid and compact models and who hankers for possession of some mint blue and gold parts. A chassis I designed a year or two ago has served as a basis for a variety of vehicles built by SMC members and, as an example of mechanism in miniature, my addition of steering and other features to a sports car model from one of the Binns Road manuals has been much appreciated by the youngsters.

It is always a delight on a club night to greet young members who bring along evidence that they have been beavering away at home with the perforated metal. Little Abel Reseigh turned up the other evening with a smart self-designed lorry-mounted crane built from a combination of a Highway Kit and a Crane Kit. Martin (the mechanical marvel) Harrold has brought along a few ingenious electrified devices from time to time, and his friend Keith Assender once showed us his adaptation of 'flight deck'. Mark Wadeson is air-minded and often brings an aircraft model. Peter Neville, now a six-foot-long O-level contender, claims a world speed record for the construction of the No 10 set Beam Bridge, but didn't bring it to the club because it wouldn't go into his saddlebag.

Not satisfied with having the ton up, the SMC is still adding members, and recent newcomers are Ian Hall and Robert Clark, both nine years old and living in Stevenage. Robert's father, Jim Clark, has also joined, and another new adult member is Frank Banfield of Stevenage.

The exhibition mentioned in the January *MM* is to be held on the 18th June at the Braminghame Centre, Weltmore Road, Luton, Beds. Dial Dennis Higginson on Stevenage 53392 or write to him at the address below for further details.

As a final treat, our photograph this time shows our brawny Secretary, as he looked last year after his holiday among the Ambre Solaire people, modelling a persuasive line in sporting toggery. Bernard Dunkley, Stevenage Meccano Club, 7 Buckthorne Avenue, Stevenage, Herts, SG1 1TT, England



GUISBOROUGH MECCANO CLUB

We are a club of 10 members aged from 8 to 12 years. The club is held in my front room on Thursday and Friday nights, and its prime function is to teach and help members build models, but we also have board games such as chess, Monopoly, etc. We also intend to hold, and go to, exhibitions in the area.
Arthur Ing, 5 Scarteen Close, Guisborough, North Yorks, England

SPECIAL ANNOUNCEMENTS

MECCANO IN THE NORTH OR EAST MIDLANDS

Anyone living in the North or East Midlands of England who is interested in getting together to investigate the possibility of a Meccano Club being formed, should contact Geoff Coles at 'Little Court', Bleasby, Nottingham, NG14 7GH, England.

MECCANO IN CARLISLE

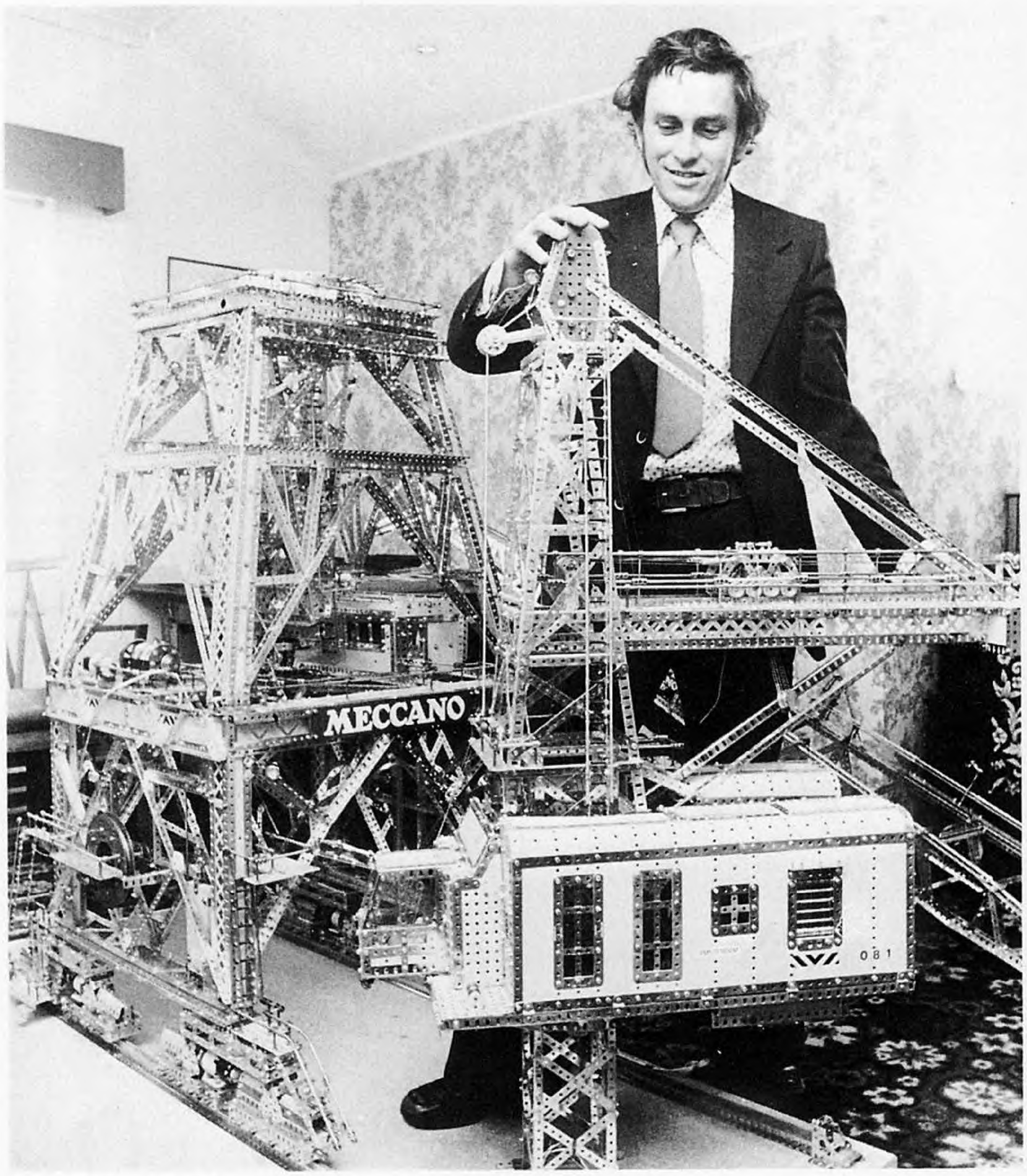
Meccano enthusiasts interested in forming the proposed Border Meccano Club, should contact Brian Reay at 1 Station House, Low Row, Brampton, Carlisle.

EXHIBITIONS IN SOUTH WALES

Meccano engineers in South Wales and the West of England who are interested in exhibiting their work in Meccano Sections of Model Exhibitions in Swansea on 23-24th of July and/or in Cardiff on 24-25th of September, should contact Dr Brian Walker at Capmartin, 165 West Road, Nottage, Porthcawl, Mid Glamorgan, CF36 3RT, Wales. [Tele: Porthcawl (065 671 4315].

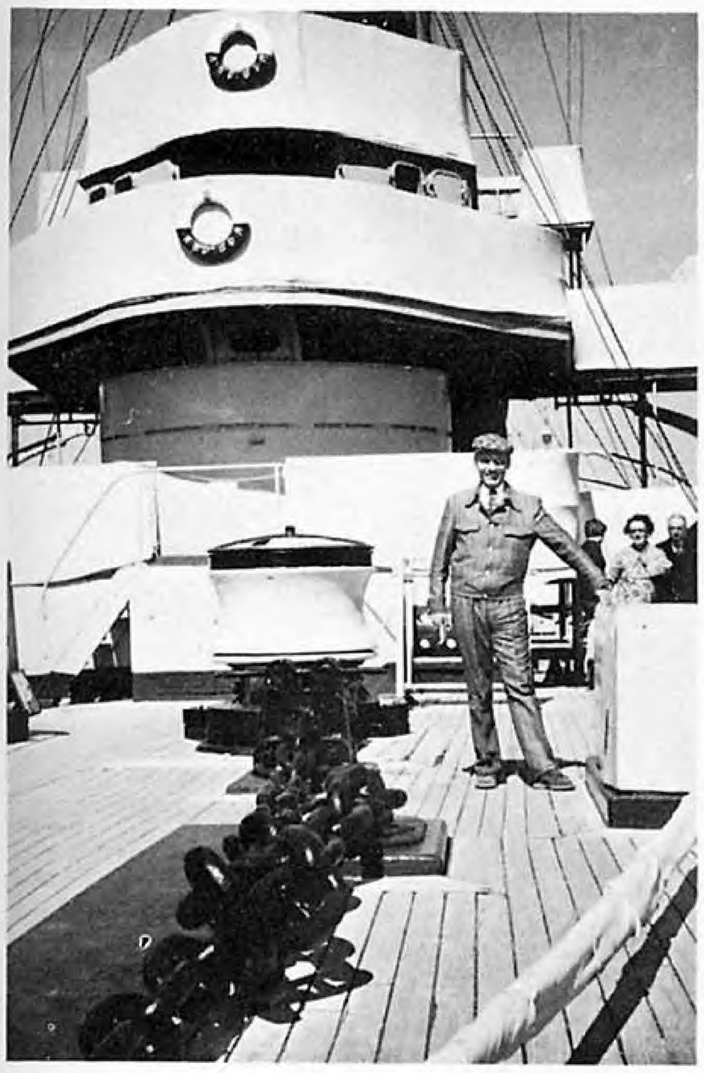
MECCANO IN BRISTOL

I am still interested in meeting other Meccano enthusiasts in the area; even if we never get to forming an actual club, the contact with fellow Meccanomen and Meccanowomen should be very stimulating and useful; those contacts made from my first advertisement have proved very fruitful.
Ian C Sellick Basement Flat, 24 Belmont Road, St Andrews, Bristol, BS6 5AS, England



A scene from the Transvaal Meccano Guild's recent 'Meccano & Hobbies Exhibition'. Bill Steele demonstrates his model of a 100-tonne Shipbuilding Crane. Standing 5m high when fully assembled, the model was resplendent in current colours. It performed its operations faultlessly throughout the show, ringing warning bells and flashing lights to the joy of the onlookers. The gigantic model is seen here split into two sections.

Design for Joy by PART 3 Andreas Konkoly





Acquaintances often ask me "What do you do when you are not working with Meccano?" My reply is: "I work with Marklin!"

Of course, that is only a joke. I am envolved in an important profession: the spreading of technical periodicals in Hungary. I have little time for Meccano, yet I have been quite prolific in that time; I have designed and published 60 Meccano Supermodels, 20 Middle Models, and many interesting mechanisms and ingenious lesser models.

I do not work on Meccano during my summer vacation, instead I often pay visits abroad. In the last 18 years, I have visited foreign countries 25 times. On Sundays, weather permitting, I often make excursions with my 'better half' Clara to nice places in Hungary.

I wonder how many readers will have heard of Balaton Lake in Hungary. This lake slices the magnificent peninsula of Tihany in half. In 1962, Clara and I spent our summer vacation at the Tilhanyer Motel. One night I didn't sleep a wink, and in the morning when Clara asked my why, I had to admit that I had been thinking all night of how to make a triangle, a square, and other figures from a circle.

It was because of that night's thought that I invented the Universal Design Maker. 'Spanner' called it a 'Magnificent Meccanograph', and published it in the *Meccano Magazine* for August 1965. On that machine, and on the Spiralograph [*MM* January 1977], there appeared for the first time in Meccano history, the Slider Ball-Point Pen Head, which slides backwards and forwards on a shaft. This moves a drawing arm, and the end of the shaft bumps with a Bumping Wheel Pair which have in their holes up to four Bolts or Pivot Bolts to assure the greatest variety of bumpings and an endless variety of patterns.

I had more sleepless nights in the Tihanyer Motel, during one of which I invented a Meccano Designing Machine Turntable that has subsequently been well proven. It consists of an inverted Circular Girder, inside which there is a piece of ground glass separated from the top by a small gap. Beneath the ground glass there is a 6" Circular Plate which has a circle of snow-white drafting paper on it. A steel wire acts as a clip to hold another smaller circle of drafting paper to the ground glass. It is this second piece of drafting paper on which the design is drawn. It is a simple matter to change the design paper by removing the wire clip.

I employed a ball-point pen in the Slider Drawer Head so that continuous drawing is possible. This also facilitates quick colour changes by simply changing the refill.

It was during that night that I also thought for the first time that the Design Table could be made to move slowly backwards and forwards. Later, I used an eccentric to move one end of the Drawing Arm to and fro; I even used it across the Arm on the Super Universal Design Maker.

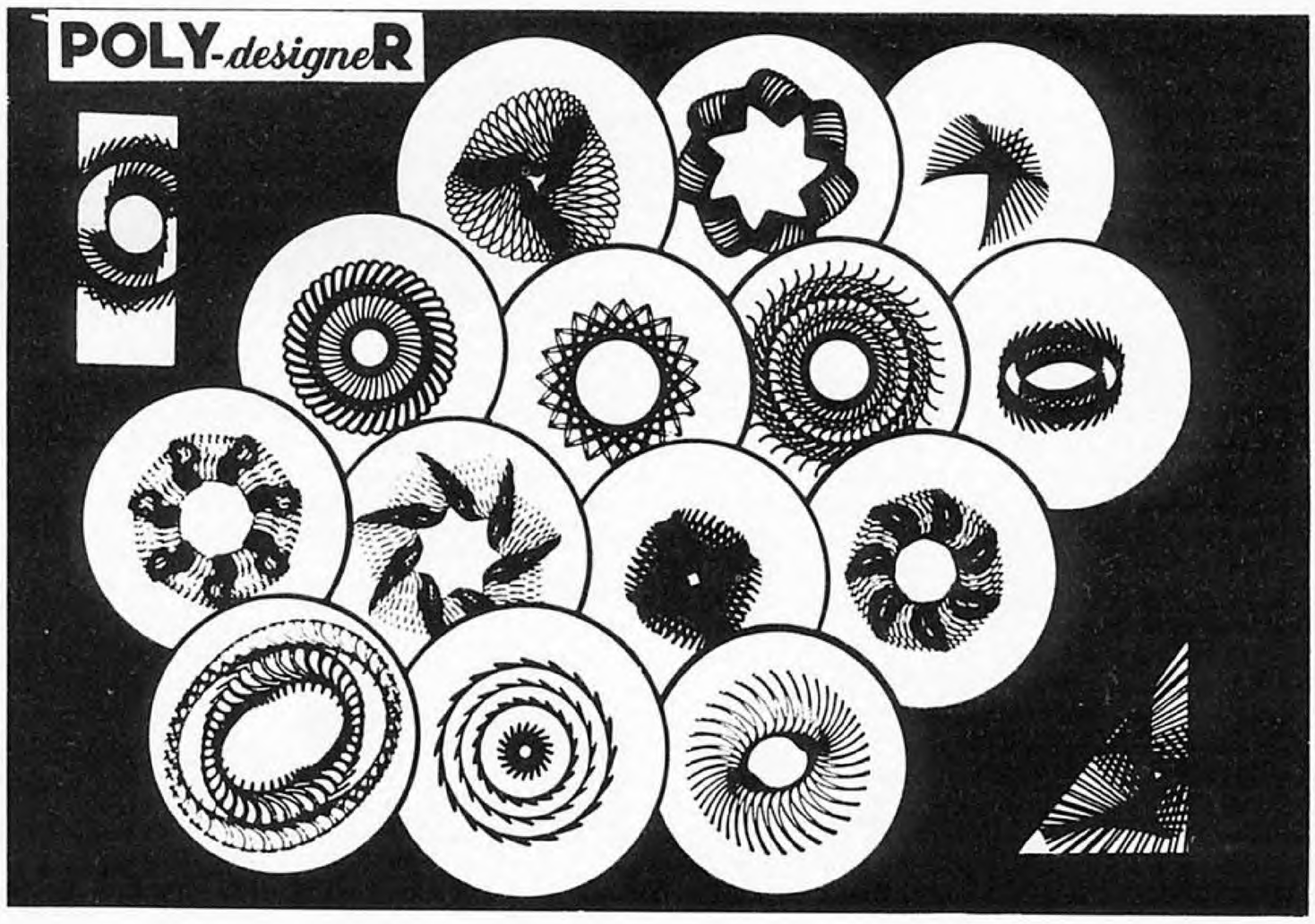
In 1967, I decided to construct a simplified version of the 'Robotgraph'. The resulting model had few gears, but nevertheless, it worked well.

Then I developed my second prototype designing machine, which I called:

POLY-DESIGNER

This machine evolved through some simplification of the design and principle embodied in the 'Robotgraph', although it cannot produce friezes.

The POLY-designer is a useful teaching







aid for schools, and it is capable of tracing a variety of circular, eliptical, star-shaped, 3—,4—, and 7—sided, and floral patterns. A production-model POLY-designer can be made of plastics.

In 1968 I decided to build a machine that worked on the turntable principle, but that exclusively produced straight lines. The drawings were fully deviated from the circle. The first machine of this type that I constructed was the

MECCANO VARIOGRAPH

The Variograph is a breath of fresh air in the stale atmosphere of the traditional Meccanograph. It draws not only 2— and 5—way patterns, but also square, delta, deltoid, trapese, trapesoid, butterfuly, trefoil, needlework, and star-shaped patterns. It perfers to work with short lines, and I feel that its patterns rather suit the fable world of Hans Christian Anderson.

With less modification, we get a designing machine that produces very dense patterns, and by changing the setting part way through a design, many interesting extra effects can be produced.

SUPER VARIOGRAPH

The Super Variograph makes op-art patterns exclusively in circular, eliptical, 3—,4—,5—,7—,14—,21—, and 28—sided lace embroidery and needlework forms. This machine proves that Meccano, when in competent hands, can be used in all branches of graphic art.

Finally, with a few modifications, we can develop the Super Variograph into the

ULTRASUPER VARIOGRAPH

This model really earns the title of 'ultrasuper', as it draws patterns that are indeed fantastic. These samples are ideal for joining together to form chain-designs, but they are also beautiful independently.

When I had made over 100 different designs with it, I decided to have it manufactured as a plastic toy. Thus it became the third commercial prototype to come from my family of designing machines, and with 4 gears only, it produces as many designs as the Ultra-super Variograph.

After this I designed a new machine, the

PINE-NEEDLE VARIO

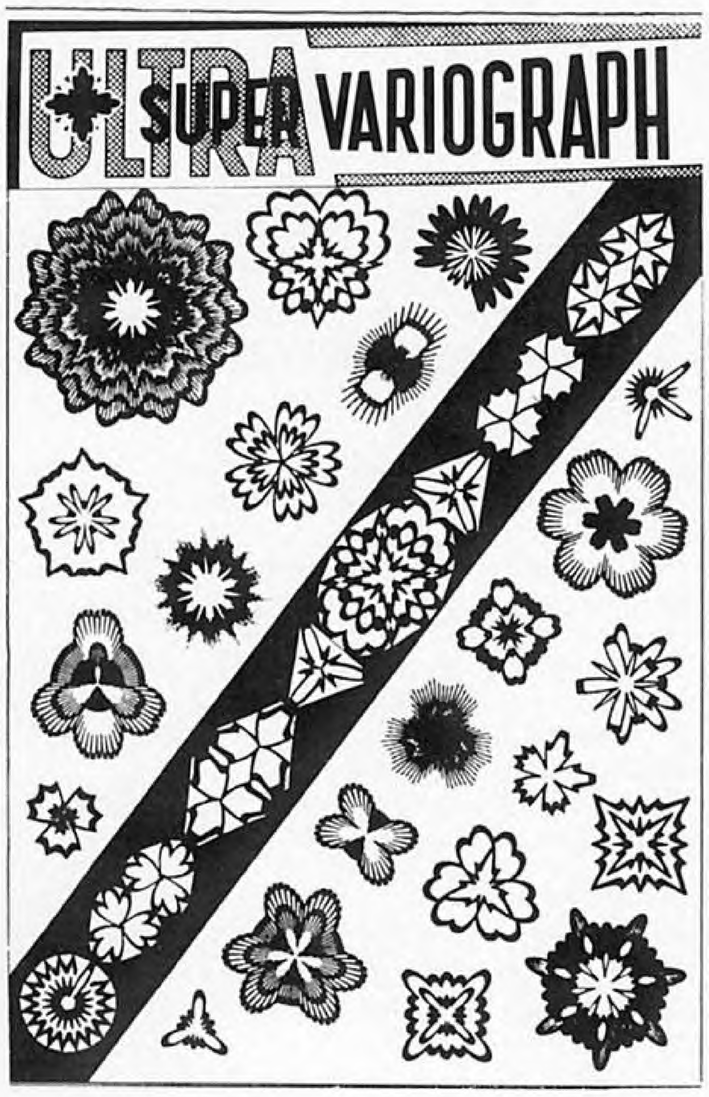
It is incredible that with only 4 gears (two of which are special gears) we can get thousands of beautiful original patterns. Any of the designs can be re-drawn with 20 types of pattern shape (see 3-part circular pattern in Fig.6). The machine produces patterns formed of very, very short lines, and the rich selection of possible designs is evident from the illustration.

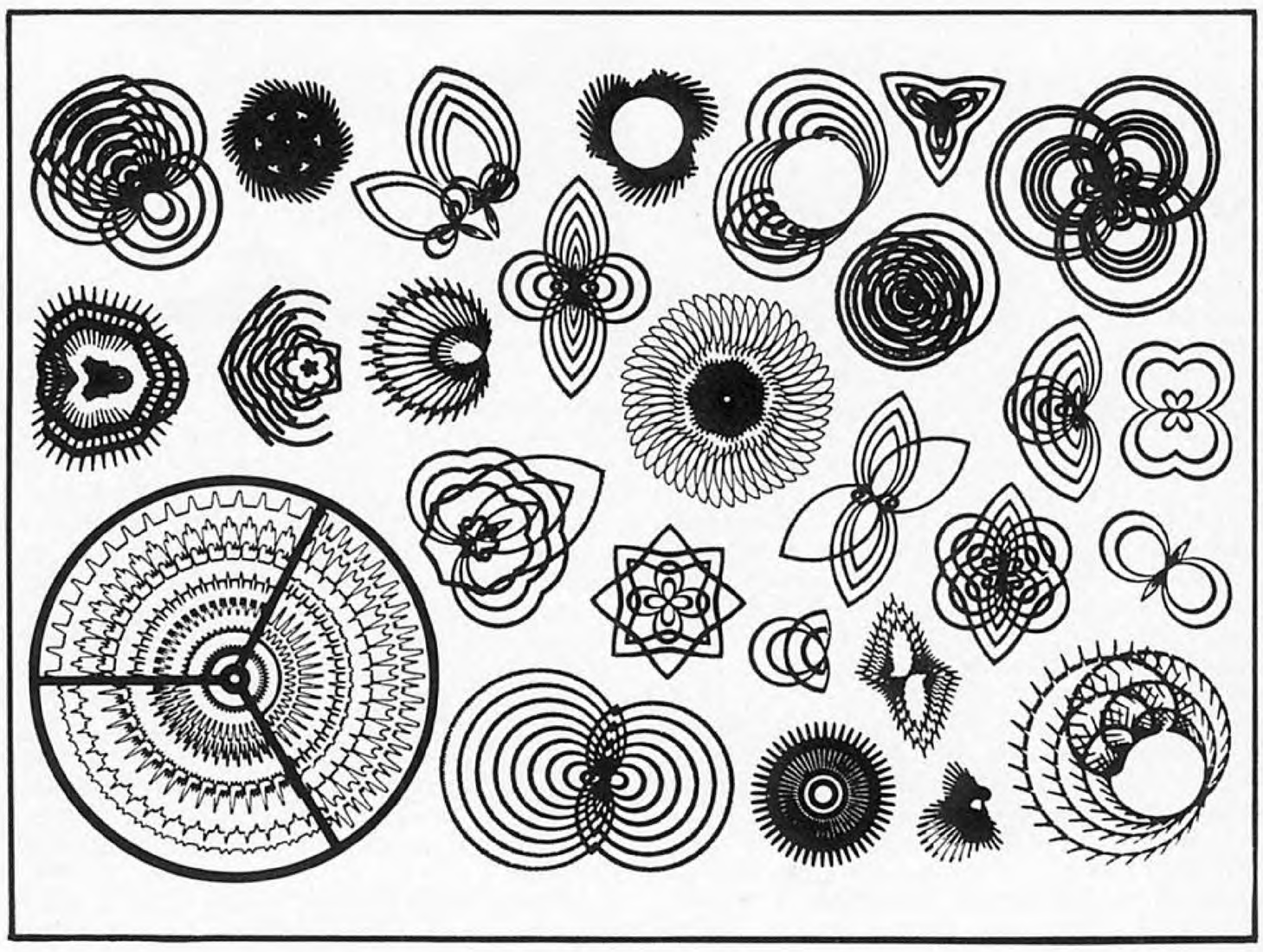
An interesting point is that the Pine Needle Vario's patterns are often similar to real-life objects. An accompanying photograph shows some of them.

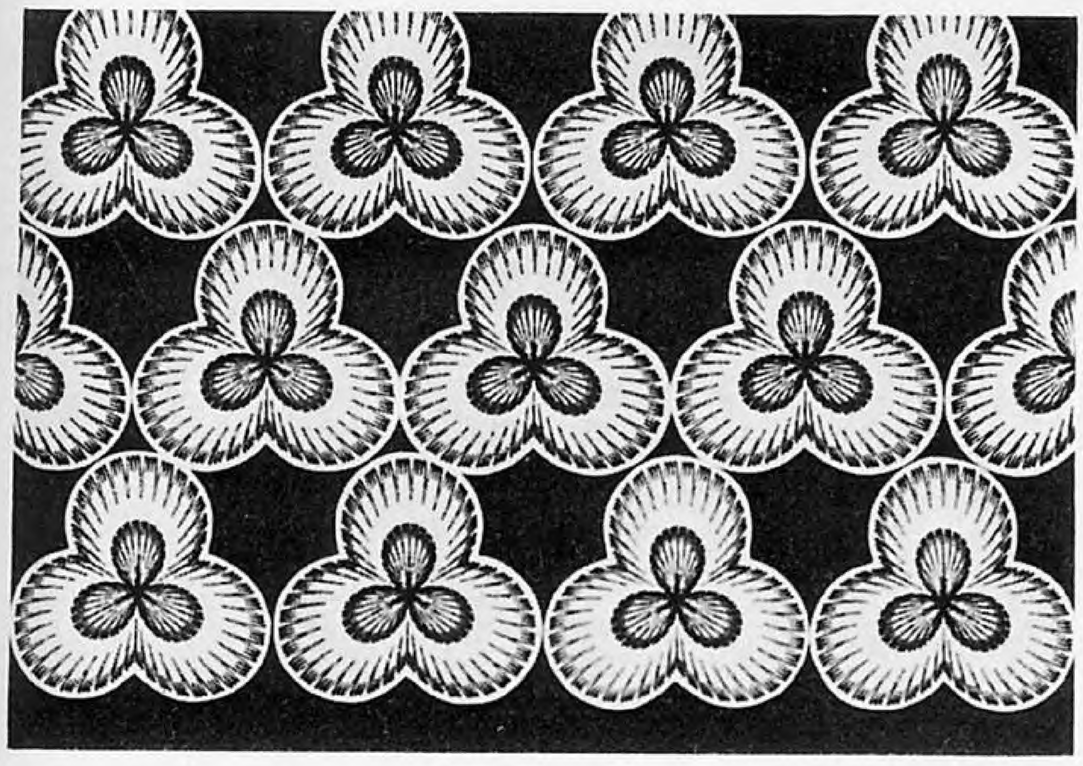
In the next edition I shall continue my review of the Meccanographs that I have designed by introducing you to the Guilloche series.

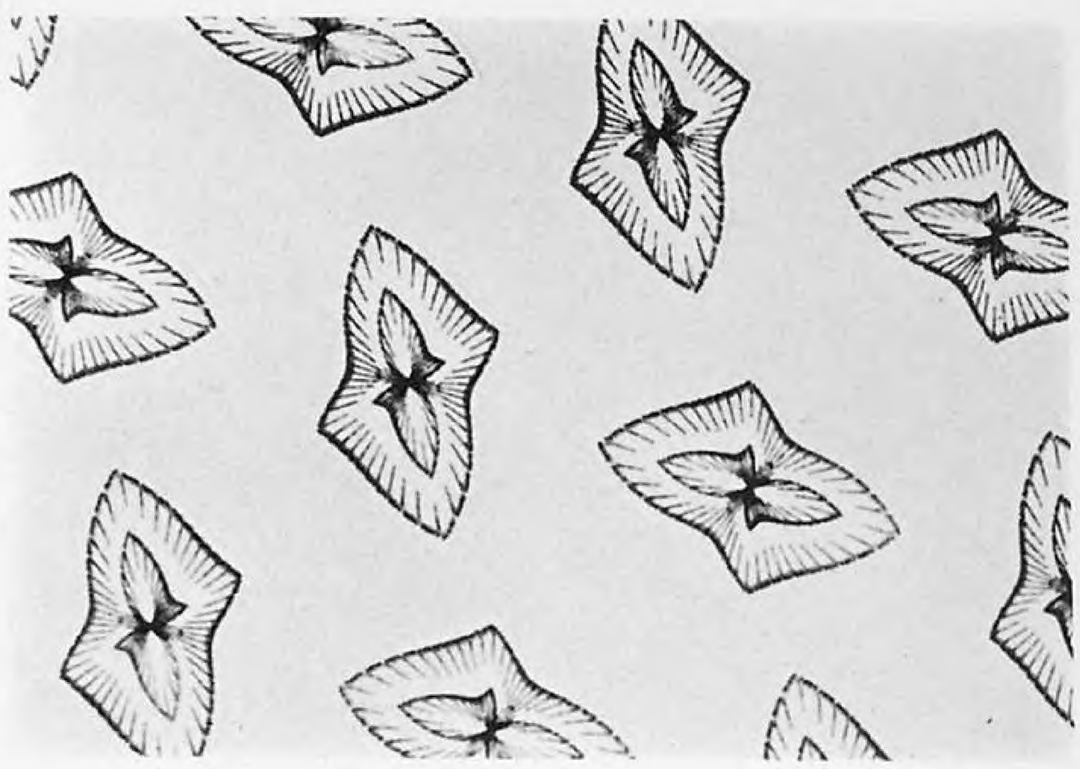


ABOVE: . . . . . The built-up designing table described in column two on the previous page









PINE-NEEDLE VARIO

FIRE

GEOMETRY

SLIPPER

EAGLE

MAP

EAR

BUTTERFLY

PIANO

HEDGEHOG

DEATH's HEAD

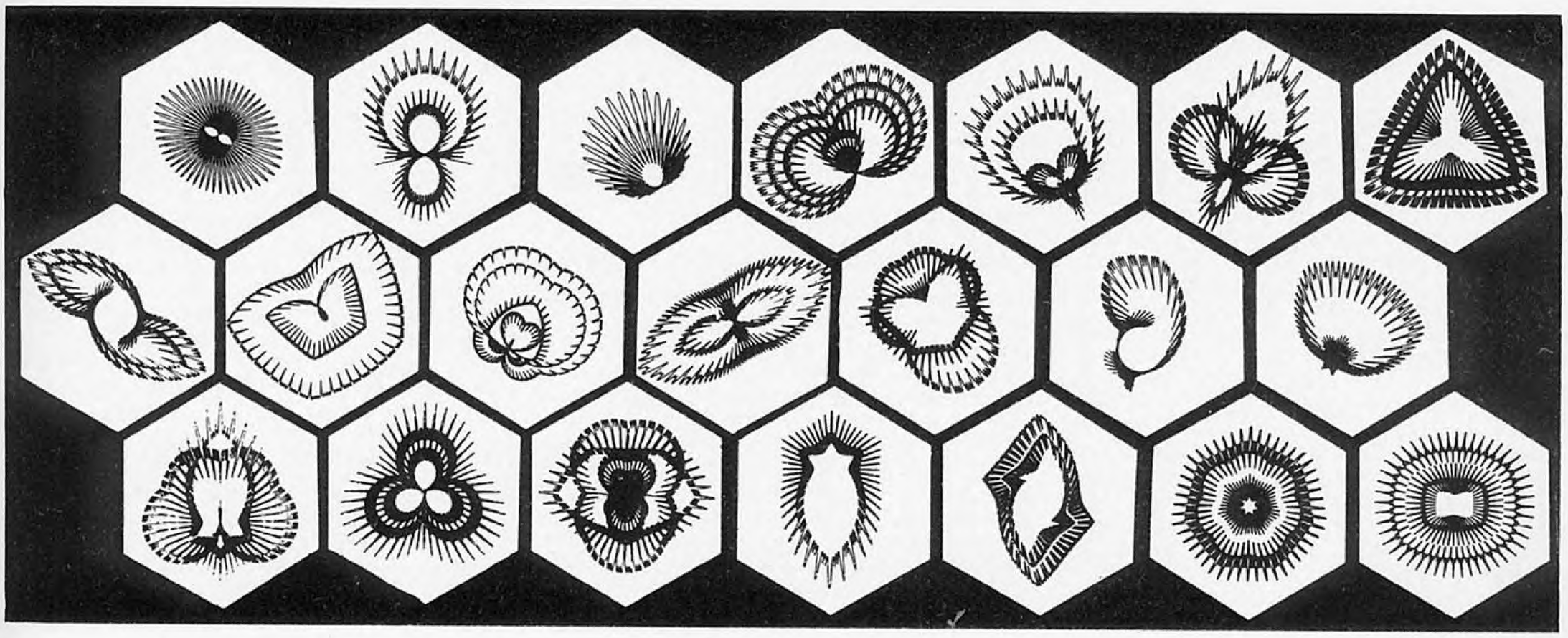
ASSYMETRY

MIRROR

PEAFOWL

BEARDS

SHOVEL



Cross-country '4 x 4'

PHOTOGRAPHED AND DESCRIBED BY BERT LOVE

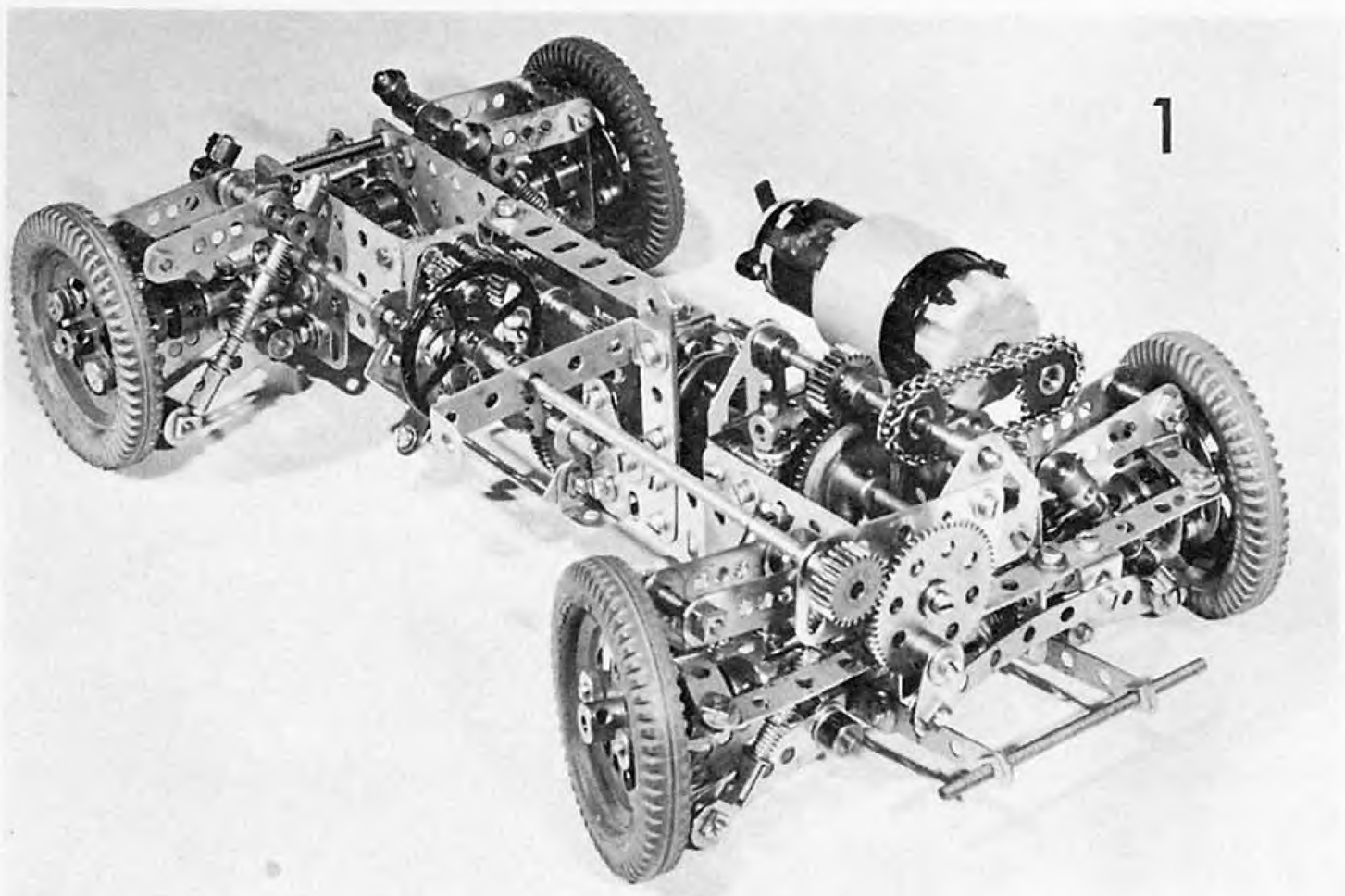


Fig1 Left: General view of four-wheel-drive chassis showing independent suspension all round. Note coil spring suspension struts.

Chris Beckett's previous article Bucket on a String [*ME8* 1975 June] demonstrated his design ability as a schoolboy in utilizing Meccano Gears. He has now come up with the compact Cross Country Chassis illustrated in Fig.1. Fitted with four-wheel drive and independent suspension all round, this model really will operate on the ground without the sorry sight of sagging suspension and 'cross-eyed' steering!

The building instructions which follow are based on Christopher's notes. This is a freelance design with spur differentials front and back, flexible drive joints on the front axle, a two speed forward plus reverse gear-box, with the forward gears in syncromesh.

Parallel suspension struts with Compression Spring diagonals are fitted to all four wheels to give all-round independent suspension. High mounting of the power unit is chosen for swamp clearance, and this would be balanced on the opposite side of the chassis by heavy-duty recovery gear and tools stowed in a horizontal compartment over the steering gear. This side of the model is left 'open' for the sake of clarity.

THE DIFFERENTIALS

Construction of the spur gear differentials is the same for both axles, the crown wheel being a 60-tooth Gear in each case, and these can be seen quite clearly in the various illustrations. Two Long Threaded Pins are bolted to these Gears, and each Pin carries two Washers, a 19-tooth Pinion, another Washer and a Collar. Six-hole Wheel Discs form the other end of the differential cages, and the Threaded Pins engage two of the holes.

A pair of ¾"Bolts in each Wheel Disc carry the intermediate Gears which are also 19-tooth Pinions critically spaced by Washers. Drive to the two half-shafts in each axle is via two more 19-tooth Pinions, but the protruding end of one half-shaft runs in the bore of the Pinion attached to the other half-shaft to provide a central journal. Right angle drive at front and rear is provided by small Contrate Gears driving transverse short Axle Rods carrying 15-tooth Pinions by which, drive to the differential cage is transmitted to the 60-tooth 'crown' wheels.

Restricted length at the rear of the chassis required the use of a Socket Coupling on the Keyway Shaft coming out of the Gearbox to make a short join of the rear Contrate Gear to the gearbox. Sufficient room is available at the front end for a standard Universal Joint before the Contrate Gear which drives the front spur differential.

THE CHASSIS

Three sections comprise the chassis, namely Rear Axle Box, Gearbox housing, and Front Axle Unit. Starting with the Rear Axle Box, a pair of 3"x1½"Flat Plates are spaced by a 2"Screwed Rod and lock-nuts as shown in Fig.2, and by outrigger bars carrying the rear fender. These outriggers are 3"Strips bolted to the slotted holes of 2"Flat Girders which which are bolted to the lower row of holes in the 3"x1½"Flat Plates. Construction is clear from Fig.3 which shows a close-up of the underside of the rear differential and suspension.

½"x½"Angle Brackets are used to secure the Plate Plates to a 1½"□Flat Plate forming the rear end of the Gear-box housing, but where these Brackets are secured on the underside, the 1½"Plate is extended by a 2½"Strip laid across the bottom three holes. The centre row of holes in the 1½"□Plate is also similarly extended, and this can be seen in Figs.2&3, the purpose of these 2½"Strips being to form securing points for the Gearbox housing.

On the engine side of the chassis, the Rear Axle Box has a 2½"Narrow Strip attached to the centre row of holes in the 3"x1½"Flat Plate, and this Strip extends two holes to the rear, holding Short Threaded Pins and a 1"x½"Angle Bracket forming a gate for the gear lever engagement shaft.

THE REAR SUSPENSION

Swivel points for the rear suspension arms are ½"x½"Double Brackets mounted on the 3"Flat Plate and 2"Flat Girder for upper and lower points respectively. Collars are used as stand-off spacers as can be seen in Fig.3. Suspension arms at all points on the chassis are 2"Strips, and these pivot on the Double Brackets by means of Rods. On the underside, Collars and Washers secure these Rods, but Fig.2 shows the upper rear suspension pivots which are made from 1½"Rods, but Short Couplings are secured to either end making sure that the transverse plain bore of the Short Couplings is clear to allow the diagonal struts to move freely under load.

Each half-shaft protrudes from the rear axle-box where it receives a Universal Coupling, the second portion of which is secured in a Socket Coupling. Wheel Discs form the hubs and are lock-nutted to the threaded portion of Handrail Supports, but these are first passed through the centre holes of 1½"Double Angle Strips.

Shim washers (Meccano Electrical Brass Washers) should be used between the lock-nuts and DA Strips with a spot of oil to make a smooth-running bearing. Both ends of the DA Strips are tightly bolted to the centre threaded holes of Couplings which ride on 2"Threaded Rods in the upper and lower outboard ends of the 2"supension arms.

Lock-nutted at each end of the Screwed Rods are Rod and Strip Connectors holding the 3"Rods forming the diagonal struts. These struts are each loaded with four Compression Springs separated by Washers, and the upper end of the Rods are capped with Collars, but the Rods themselves move freely in the cross bore of the Short Couplings.

One tapped hole of each Handrail Support is fitted with a Keyway Bolt, and the Socket Coupling is adjusted to make an easy joint on the ball of the Handrail Support. Note: when securing the DA Strips to the Couplings, packing Washers must be used under the boltheads so that the Screwed Rods running through the Couplings are not pinched tight.

THE GEARBOX HOUSING

Figs. 2&4 show how the Gearbox housing is constructed, the upper reinforcing member being a 3½"Girder secured ny ½"Brackets to the two 1½"□ Plates forming the gearbox ends. On the engine side, two 3½" DA Strips form the gearbox side, and a 3½"Flat Girder bolted to the DA Strips gives added strength.

The front plate of the Gearbox housing has a 2½"Strip across its middle, but the bottom row of holes carries a 2½" Grider, clearly seen in the underside view of Fig.4.

On the gear-shift side of the box, a 3½"DA Strip runs between the two end plates, and is set at an angle of 45° for clearance of the sliding gear-shift rod and its ½"Pulleys used for selector location. Register is provided by a 1"Wiper Arm [Part 531] attached to the third hole of the 3½"DA Strip as shown in Fig.4, the contact tip of the Wiper Arm lodging in the appropriate Pulley groove on gear selection.

Two 1½"Angle Girders are bolted to the outer side of the front Gearbox plate, their longer flanges inwards and their round holes pointing forward to provide securing points for the front axle unit.

THE GEARBOX

At this stage, the components of the gearbox may be fitted. Fig.4 shows the output shaft which is a Keyway Rod carrying a Universal Joint at its front end, the Rod passing through the bottom centre hole of the Gearbox where it is

A FOUR-WHEEL-DRIVE OVERLAND CHASSIS WITH INDEPENDENT SUSPENSION AND SYNCHROMESH GEARBOX ★ DESIGNED BY CHRISTOPHER BECKETT

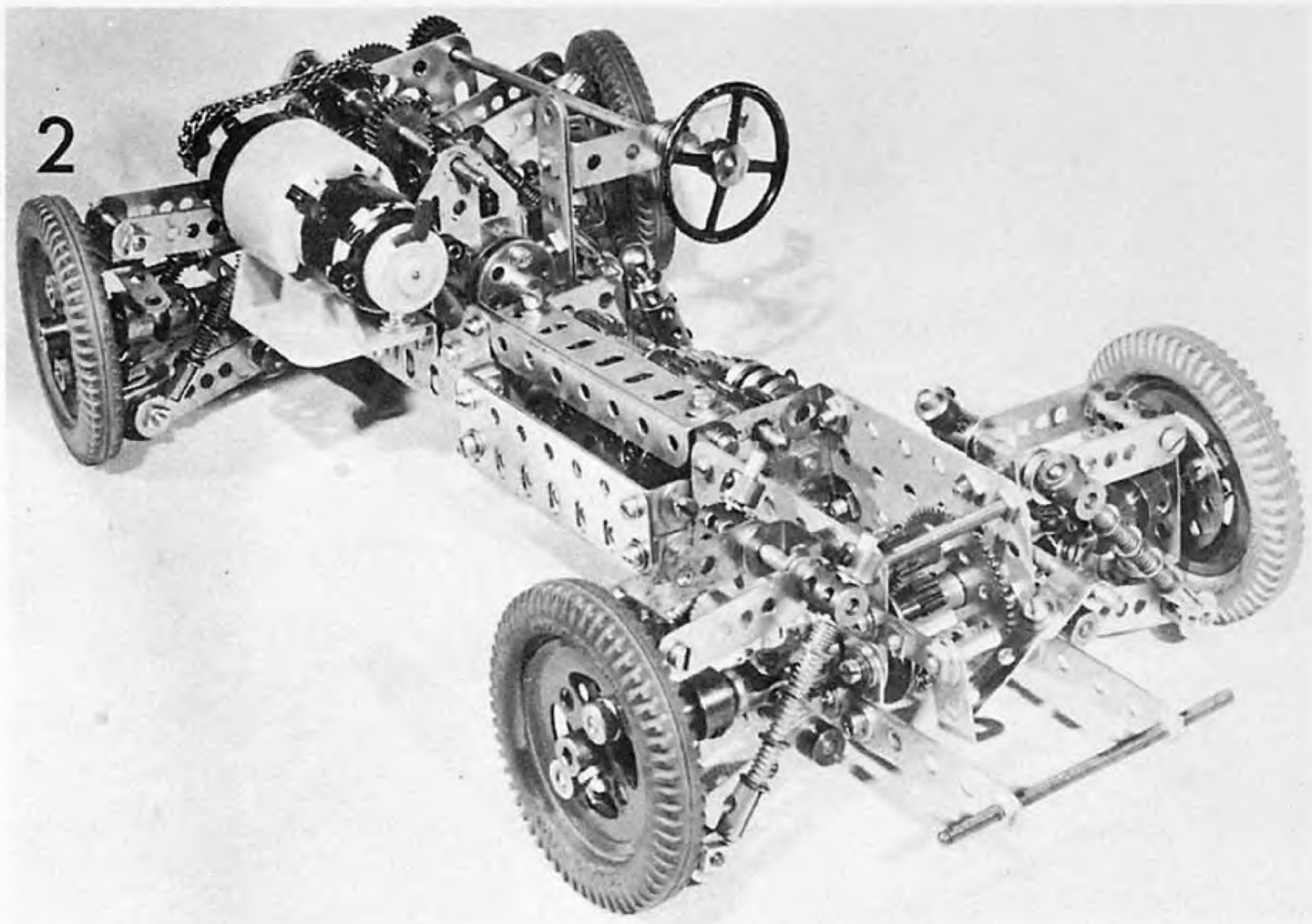


Fig.2 Right: Rear view of chassis showing box construction and spur-gear differential with flexible drive to the wheel hubs.

fitted with a Washer and a Compression Spring.

Next comes a 60-tooth Gear and a 1"Flexible Ring in a 1"loose Pulley, followed by another 60-tooth Gear locked into a Socket Coupling with a 50-tooth Gear. A second 1"loose Pulley with Flexible Ring comes next, followed by another 50-tooth Gear, a Compression Spring, a Washer, and one more 60-tooth Gear. The rear Socket Coupling carrying the small Contrate Gear is fixed to the output shaft by an internal Collar.

Journals for the input shaft are the top centre holes of the Gearbox end plates.

A 5"Rod is fitted with a 1"Electrical Bush Wheel [Part 518] that carries two lock-nutted Bolts to engage a similar Bush Wheel from the Motor Drive. If binding occurs at this point, 4BA or 6BA bolts may be substituted.

The input shaft slides for engagement of reverse, so the Bolts in the 1"Bush Wheels must be long enough and free enough to allow about 4mm of travel.

Behind the Bush Wheel, a Collar is fixed to the input shaft followed by a Washer as seen in Fig.4. After inserting the shaft, a Washer, 15-tooth Pinion, Collar, 25-tooth Pinion, 15-tooth Pinion, Compression Spring, and Washer are fitted and fixed in that order, final adjustments being made when the Gearbox selector shaft etc have been fitted.

On the lower (output) shaft of the Gearbox, the rear 60-tooth Gear is fixed to the Keyway Rod, its sole purpose being to act as part of the reversing gear. In constant mesh with this 60-tooth Gear is a 15-tooth Pinion mounted by a ¾" Bolt on a Fishplate, the Fishplate being bolted to the outer hole in the centre line of the rear Gearbox plate. No other gears are fixed on the output shaft, but the Socket Coupling carrying the 60-tooth and 50-tooth Gears is fitted with Keyway Bolts in its slots to give a sliding engagement on the Keyway Rod. The 15-tooth reversing Pinion can be seen just behind the steering wheel in Fig.1.

THE GEARBOX ACTION

Action of the Gearbox is as follows: The forward 60-tooth Gear and the rear 50-tooth Gear on the Keyway Rod are in constant mesh with their respective Pinions on the input shaft just above them, and these two Gears are revolving in syncromesh all the time that the input shaft is driven. If first gear is required, the gear shift lever moves the Socket Coupling putting the 60-tooth Gear — which is loose on the output shaft — under compression from its spring causing a clutch action between the two 60-tooth Gears and the 1"loose Pulley with Flexible Ring between them.

Further movement of the gear lever moves the 60-tooth Gear that is locked in the Socket Coupling into mesh with the 15-tooth Pinion on the input shaft. Selection of second gear does the same thing for the pair of 50-tooth Gears. In the neutral position, the Socket Coupling Gears are out of mesh or contact with their adjacent Gears.

In the two 2½"Strips running across the centre row of holes in the end plates of the Gearbox housing, the two outer holes are used for the gear shift rod which can be seen just below the steering wheel in Fig.1. This is an 8"Axle Rod, and when pushed through the rear 2½"Strip, it is fitted with the following items. A Collar set as an end stop is spaced slightly from the next Collar and two Washers before the first ½"Loose Pulley. Then two Washers, a ½"Pulley, two Washers and a last ½"Pulley are held in place by a Coupling mounted through its centre cross-bore.

A 1½"Rod is fixed in the bottom hole of the Coupling to run across the lower shaft in the Gearbox as seen in Fig.3. From the top of the Coupling, a 1"Rod actuates the input shaft to engage reverse gear.

THE GEAR LINKAGE

The actual Gear Lever is a Coupling secured by its lower hole and extended by a Short Pivot Rod into a Handrail Coupling, and the setting of this Coupling acts as the forward end stop for the 8" Gear Shift Rod.

Position and tilt of the Gear Lever are determined by a 'gate' mounted at the rear of the chassis, and this is clear from Fig.2. A 'feeler' for the gate is a 1½" Narrow Strip bolted to a Right Angle Rod and Strip Connector on the end of the gear shift rod. When the 1½"Axle Rod in the Coupling engages with the slot in the Socket Coupling, first and second gears can be obtained by a forward or backward movement of the Gear Lever. To engage reverse, it is necessary to tilt the Gear lever inwards so that the 1½" Axle Rod disengages from the slot of the Socket Coupling, and the 1"Axle Rod in the Coupling bears against the boss-side face of the 25-tooth Pinion on the input shaft. A further rearward pull on the Gear Lever then moves the input shaft and its tail-end 15-tooth Pinion into mesh with the other 15-tooth idler Pinion to change the direction of rotation of the output shaft.

THE FRONT AXLE AND SUSPENSION

Construction of the Front Axle Unit continues from the two 1½"Girders mounted vertically on the front plate of the Gearbox housing. A pair of 3" Flat Girders are bolted to the bottom two holes in the Girders, slotted holes of the Flat Girders downwards, and the upper part of the joint is strengthened with 1" Corner Brackets as can be seen in Figs.1 and 4.

Two 3"Strips straddle the Flat Girder on the steering side, being mounted vertically three holes along, and sandwiching a 2"Strip to make a strong steering post. A Flanged Bracket may be used here instead of the 2½"DA Strip as a journal for the steering column.

Four holes farther forward, 3"x1½" Flat Plates are bolted to the Flat Girders, and four ½"Angle Brackets are attached inside the Plates at the rear to hold a 1½" □Flat Plate. The upper edge of the 1½"Plate has a Flat Trunnion bolted through to the ½"Brackets and a Double Bent Strip is bolted to the lower edge to carry the 2"Axle Rod driving the front differential. This construction can be seen very clearly in Fig.4. A second Double Bent Strip is bolted behind the Flat Trunnion seen in Fig.2 to carry the clutch shaft from the Motor drive.

A 4"Rod runs through the centre bottom hole of the two Flat Trunnions mounted at either end of the front axle unit, and is fitted, from the front, with a 1"fixed Pulley and Flexible Ring, followed by a 50-tooth Gear fixed in a Socket Coupling, then a Compression Spring, a Washer, and a Collar.

A simple clutch arm is supplied by a Coupling on a 2½"Rod as shown in Figs. 1&5, mounted in ½"Angle Brackets on the inside of the 3"x1½"Flat Plate. An Electrical Short Pivot Rod [Part 550] is held in the end hole of the Coupling, and engages the slot of the Socket Coupling just below. A Crank plus a 1½"Strip and ½"Angle Bracket complete the clutch pedal, see Fig.5.

Suspension is similar to that of the back wheels, ½"x½"Double Brackets being stood off by Collars one hole in on the top row of the 3"x1½"Flat Plates. Two 1½" Flat Girders extend the 3"Plates downwards at the front where they carry a pair of 3"Narrow Strips in their slotted holes as front outriggers, spaced by a 3½"Screwed Rod clearly shown in Fig.5. The lower brackets of the suspension arms are also stood off by Collars from these 1½"Flat Girders where the 2"Strips are pivotted on 1"Rods with Collars.

For the upper suspension arms at the front, lock-nutted Bolts form the pivots and also trap Collars by partial insertion into the tapped hole. This allows the diagonal spring struts to ride cleanly through the Collar bores as for the Short Couplings used at the rear end of the chassis. →

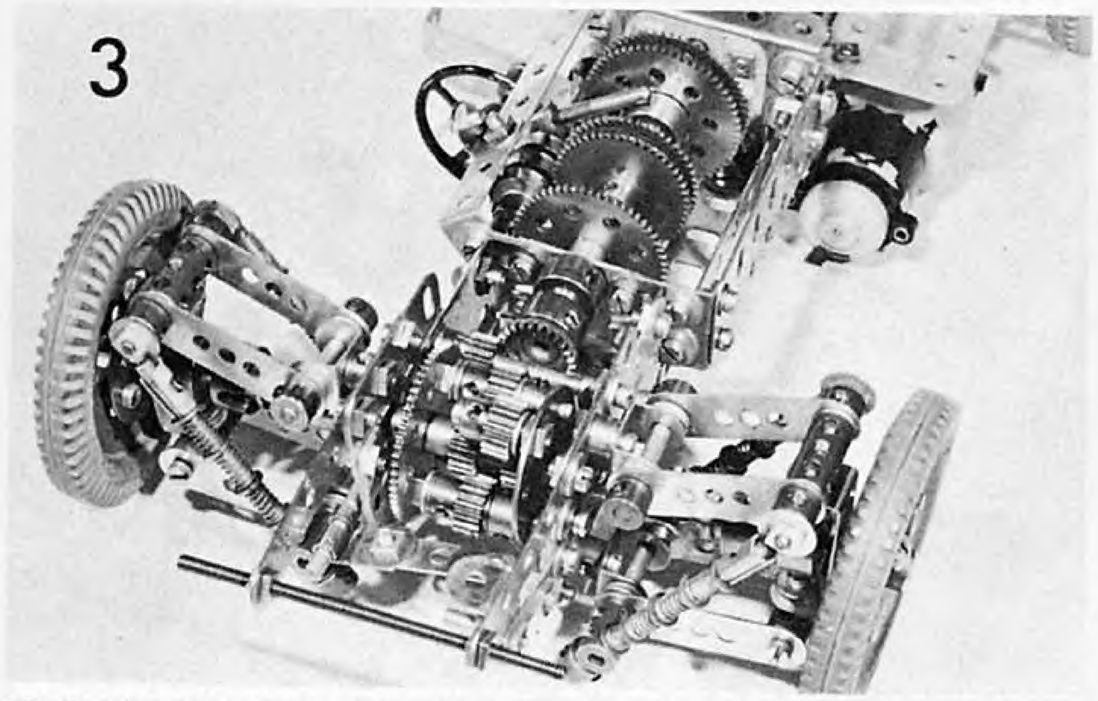


Fig.3 Close-up of rear axle unit showing all-Pinion arrangement in the differential gear, and fixed anchoring points for suspension struts.

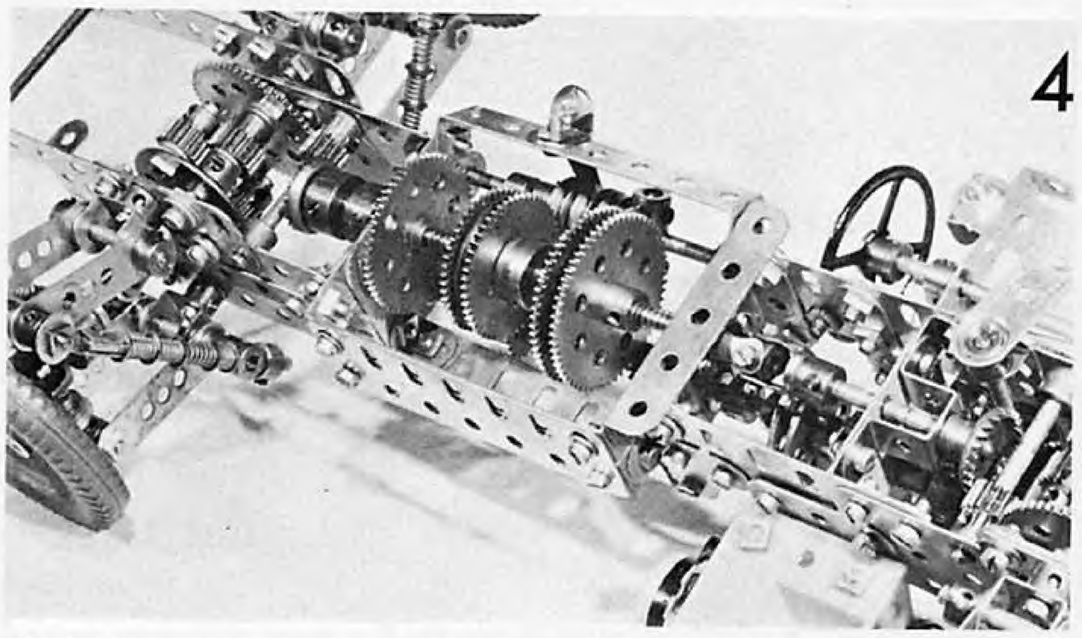


Fig.4 Underneath view of gearbox and transmission drives to identical front and rear differentials. Note clutch pedal lower lever.

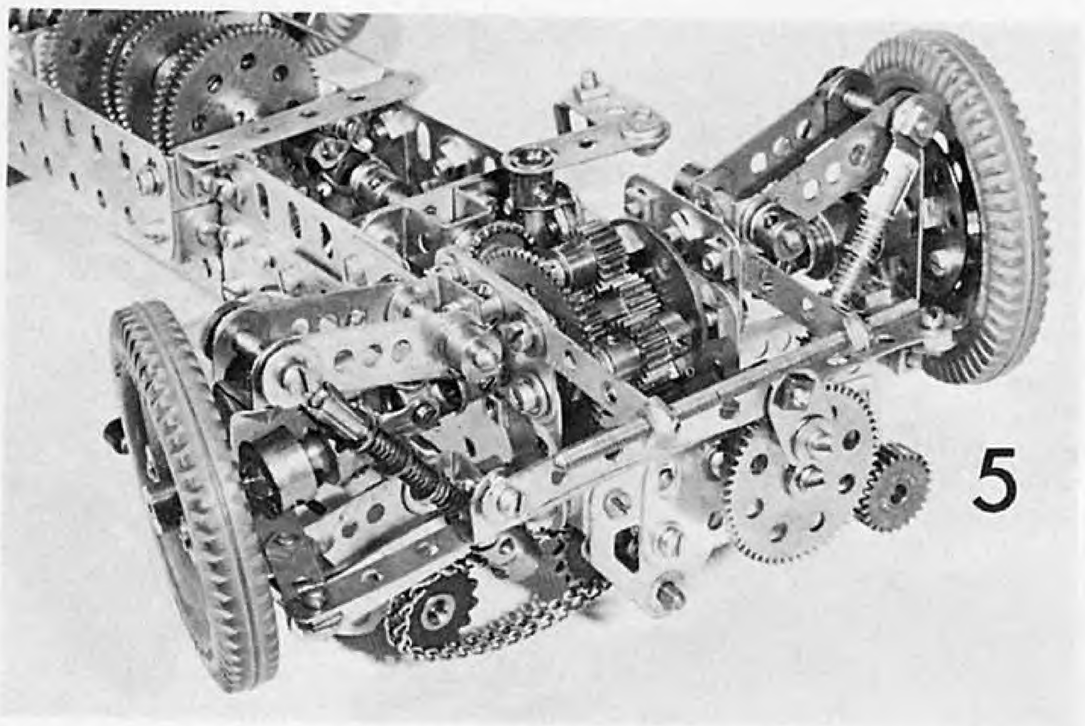


Fig.5 Front axle unit in close-up, showing spring loaded suspension struts and track rod drive arrangements for steering gear.

Fig.6 Below: Top view of front axle unit showing simple motor mounting and arrangement of steering column.

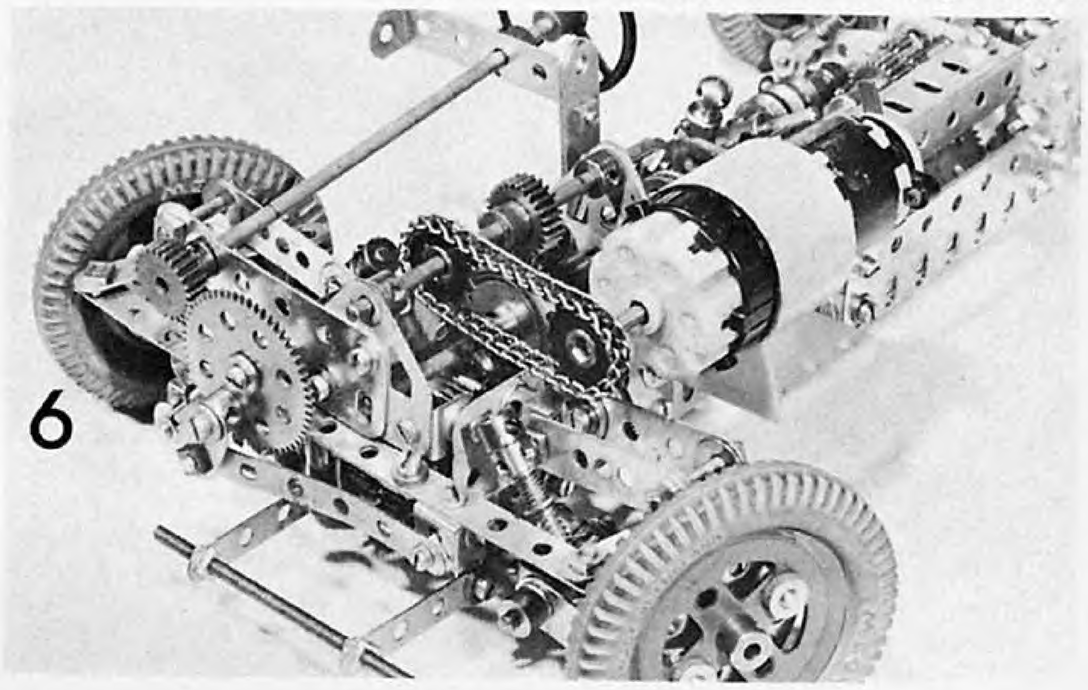
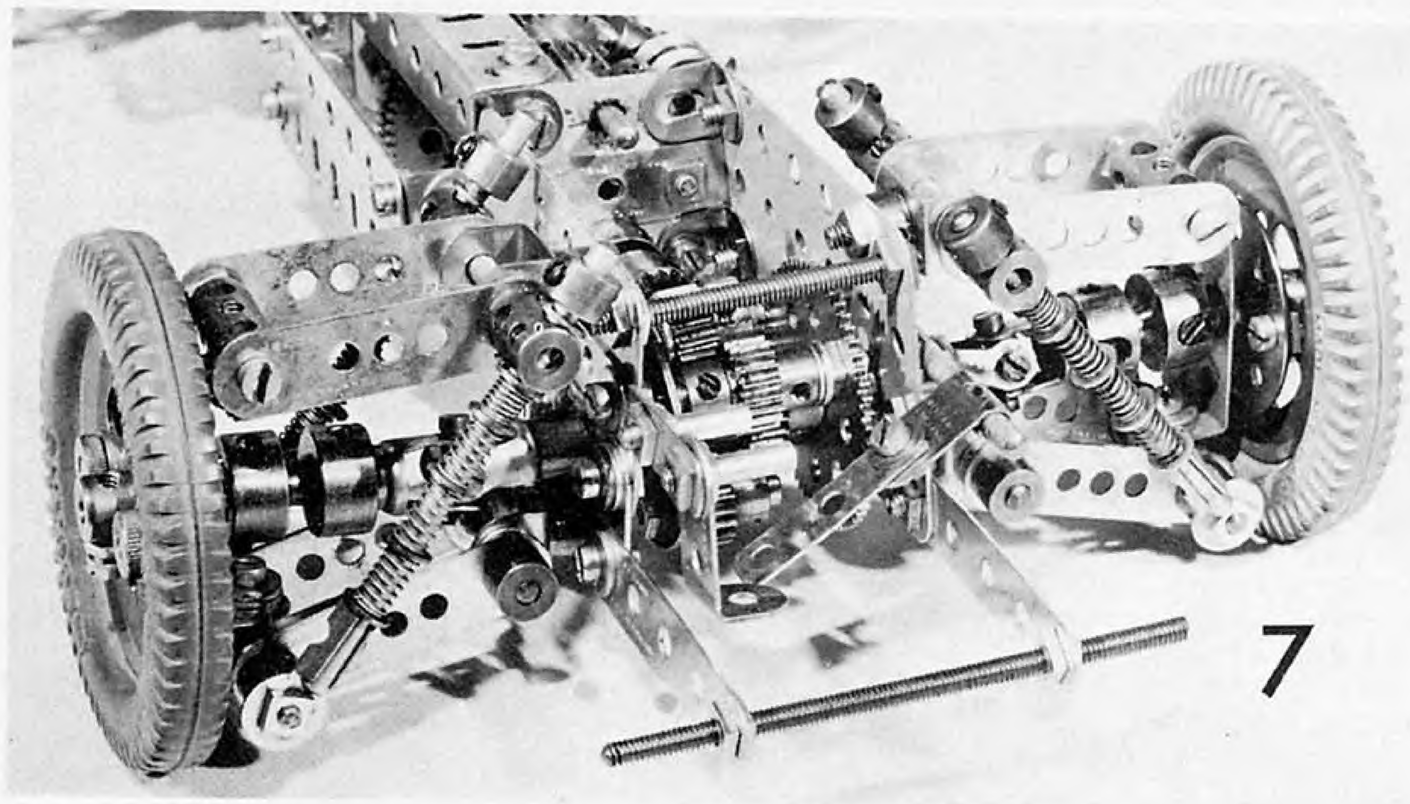


Fig.7 Below: Supplementary closeup of the rear axle assembly showing gear selector 'gate', and location of Socket coupling drive.



In the outboard position of the suspension arms, ½"x½"Double Brackets form the journals for the 1½"DA Strips used as king pins for the front hubs. The lower ends of the DA Strips are pivotted by lock-nuts to their brackets, and the upper ends of the DA Strips have 2½"Narrow Strips attached to them in the process of lock-nutting, these strips acting as steering arms.

Long Bolts or Screwed Rods are used to hold the outboard ends of the suspension arms in the Double Brackets, and lock-nuts on these secure the Rod & Strip Connectors for the diagonal spring struts as shown in Figs.5 & 6.

Two 4½"Narrow Strips are overlapped to form the track rod, lock-nutted between the steering arms and driven via a ½"Bracket from 3"Narrow Strip acting as the drag link. This, in turn, is pivotally lock-nutted to a Fishplate stood off from a 57-tooth Gear by a Collar, rigidly attached by a ½" Bolt and Nut, with a Washer under the bolthead (see Figs.1 & 5).

Another ½"Bolt holds the 57-tooth Gear to a 2½"Flat Girder mounted on the Flat Trunnion at the front of the chassis.

A slight rising angle is permitted on the 6"Rod forming the steering column, and the 50-tooth Gear provides some gear reduction to the steering.

THE MOTOR

Motor mounting can be to the constructor's choice, a 1½"Angle Girder being used in the illustrations. Wheels are attached by Terminal Nuts [Part 542] to Bolts lock-nutted to the Wheel Discs. Wheels and tyres may be doubled-up by using ½"Bolts.

The general arangement is shown in Fig.7 which also gives a good view of the flexible drive to the rear wheels via the Universal Couplings and ball sections of the Handrail Couplings.

CROSS-COUNTRY 4X4 . . . . . PARTS LIST

2 of No 3	4 of No 24a	1 of No 103f	2 of No 10	2 of No 29	4 of No 136
2 of No 4	2 of No 24b	2 of No 103g	12 of No 11	100 of No 37	1 of No 136a
3 of No 5	3 of No 25	2 of No 103h	14 of No 12	2 of No 45	5 of No 140
18 of No 6	12 of No 26	2 of No 115	1 of No 12a	5 of No 48	4 of No 142a
1 of No 6a	5 of No 26c	2 of No 115a	1 of No 12b	1 of No 48a	3 of No 155
1 of No 9b	3 of No 27	33 of No 120b	1 of No 13a	3 of No 48b	7 of No 171
1 of No 9d	2 of No 27a	2 of No 126a	1 of No 14a	1 of No 62	1 of No 185
3 of No 9f	4 of No 27d	2 of No 133a	1 of No 15	1 of No 63	8 of No 212
			1 of No 15a	45 of No 59	1 of No 212a
			2 of No 15b	4 of No 63d	1 of No 230
			5 of No 16a	4 of No 73	1 of No 231
			4 of No 16b	3 of No 74	2 of No 235
			2 of No 17	2 of No 80a	3 of No 235a
			11 of No 18a	2 of No 82	2 of No 235b
			1 of No 18b	3 of No 81	2 of No 235d
			4 of No 20a	255mm of 94	2 of No 518
			2 of No 22a	2 of No 96a	1 of No 531
			1 of No 22	1 of No 103d	8 of No 542
			3 of No 23b	2 of No 103e	2 of No 550
			2x6BA nuts & bolts		1 x Motor-With-Gearbox

NORTH WEST FRONTIER

by MICHAEL J WALKER

Secretary of the North West Meccano Guild

The inventor of Meccano, the late Frank Hornby, formed in 1919 an organization known as the Meccano Guild. Many who have read the various articles and books about this remarkable man will not be surprised at the enthusiasm with which the Guild was set up. Would-be members were informed that the President was none other than Frank Hornby himself, and that a staff of experienced workers at the Binns Road headquarters were waiting to offer their services.

These services were many and varied, but concentrated into encouraging the growth and development of interest in Meccano through the ever increasing club network. Up to the formation of the Meccano Guild, no co-ordinating organization as such existed to give the many rather isolated individual societies a sense of purpose and belonging.

The Guild further increased it's involvement in Clubroom activities by issuing certificates of membership on both Club and single-member levels, and various badges which included the Award of Merit, and the Recruiting Campaign Award. Secretaries were encouraged to notify Guild HQ of any proposed new clubs, submit regular meeting reports and ask for advice on practically any Meccano model-building or other problem. *How to run a Meccano Club* was a booklet available for the asking, containing much valuable information as to how a club should be organized and conducted. One of the less-useful suggestions therein was that members would find an invigorating game of Basketball a good way of clearing the air after a Meccano meeting! One can imagine the groans of disapproval from the more well-fed modellers at a present-day Meccano meeting, were this to be asked of them!





Membership badge ♦ Club Leader's badge



Membership Certificate





Obverse **Reverse**

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Join the
MECCANO GUILD

A Guild recruiting advertisement from the '50s

Thus it was then that the Meccano Guild had a worthwhile role to play in the lives of Meccano constructors before the war, and — to a greatly-diminishing extent — since coinciding with the post-war decline in interest affecting the Meccano hobby. Although it has not officially wound up in recent times, the Guild has certainly expired in all but name and no certificates or badges remain at Binns Road. This of course is a great pity, and leads to the question: 'Does the Meccano Guild, or a modern equivalent, have a part to play in today's Meccano World?'

With Meccano clubs and societies ever increasing in number, and exhibitions enjoying great success and enthusiasm at a peak level, we are — in my opinion — fast approaching a similar situation to the pre-war 'Golden Age' of Meccano. The resurgent *Meccano Magazine* is further proof of this, pre-war type cover to boot.

A re-vamped Meccano Guild, or federation of exisiting Meccano Clubs could once more give a worldwide sense of unity to the hobby. Badges recognizing various achievements within the clubs could again be available in a uniform format; qualified central advice,representing the interests of all Meccano clubs, could be offered as to the best date to have your exhibition/meeting etc.

Introductory leaflets packed with new Meccano outfits would attract many people to the club side of Meccano modelling who might otherwise not have given the matter any thought. A centralized organization is vital, for this is too big a job for any single Meccano society to handle. I could go on.

If you, the all-powerful public agree that the Meccano Guild still has a viable role, we may once again make the little triangular badge a familiar sight!

The illustrations in this panel are reproduced from the 1930 00—3 Meccano manual

OBITUARY

Sidney Whiteside



Reprinted from *'Bits and Pieces'* — the Journal of the North West Meccano Guild.

It was with the very deepest regret that I informed readers of *Bits and Pieces* last month of the death of our very much-liked Chairman, Sidney Whiteside. Bill Barker rang me up just after the Christmas and New Year festivities had ended to give me the shock news. Although Sidney had indeed been very ill up to then, the operation he had in a Blackpool hospital had been successful and it was while he was recovering from this that Sidney suffered a relapse and died.

It was as Chariman of the North West Meccano Guild that Sidney made his greatest impression on the Meccano hobby. Voted unanimously in to office on many occasions, he had the confidence and determination to be able to plan for the NWMG's first exhibition in Clitheroe in April 1975. At this time of course such a move had only been preceded by Henley, and it says much for Sidney's vision and ambition that the collossal prestige of a roitously successful show came to the NWMG. This and many other benefits were brought by a man only associated with the Guild for 3½ years, from the day he founded it in 1973.

In many other spheres of activity, Sidney enjoyed the same brand of success. He founded Tewel Industries, a motor accessory firm based in Clitheroe. Later he became Chairman of the boat-hire firm, Ladyline Cruisers of Nantwich, Cheshire, and he was also Chairman of Clitheroe Probus Club for retired professional and business men. Other associations included being a member of Clitheroe Golf Club for many years; he was a Special Constable for the police, reaching the rank of sergeant, and Chairman of Blackburn and District Diabetic Association. The local Rotary clubs of Darwen and Clitheroe had the good fortune to include him as a member. Sidney was an extremely widely-travelled man, visiting virtually every country that I've ever heard of, plus probably a few that I havn't heard of. The Physiotherapy Centre in Clitheroe, scene of our first show, was bought lock, stock and barrel and donated to the public by Sidney. This and many other philanthropic acts secured him the affection of all who knew him.

So in a way his tremendous successes in the Meccano world were part of a greater overall pattern of universal success and generosity encompassing his whole life. Certainly he was a true man of the world; the NWMG will never forget him.

Meccano Magazine and its Readers,
send their very best wishes
for the future happiness of their former Editor,
Mr Chris Selley,
and to Miss Christina Turner,
on the occasion of their Wedding
on the 30th of April 1977

MECCANO EXHIBITION

The Solent Meccano Club will hold their first Meccano Exhibition at
St George's Hall, Waterlooville, near Portsmouth, England
on Saturday 16th July 1977 10am – 6pm
All Meccano modellers are cordially invited to attend to display their models
Admission 10p Exhibitors Free
Further Details from the Secretary:
B W Williams, 7 Thorndike Road, Maybush, Southampton, England

ERIC TAYLOR SUPERMODELS

Following requests from readers, sets of photographs for the two supermodels: Crawler Tractor and Giant Level Luffing Crane may be obtained directly from *B N Love, 61 Southam Road, Hall Green, Birmingham, B28 8DQ, England.* Send S A E for full details.

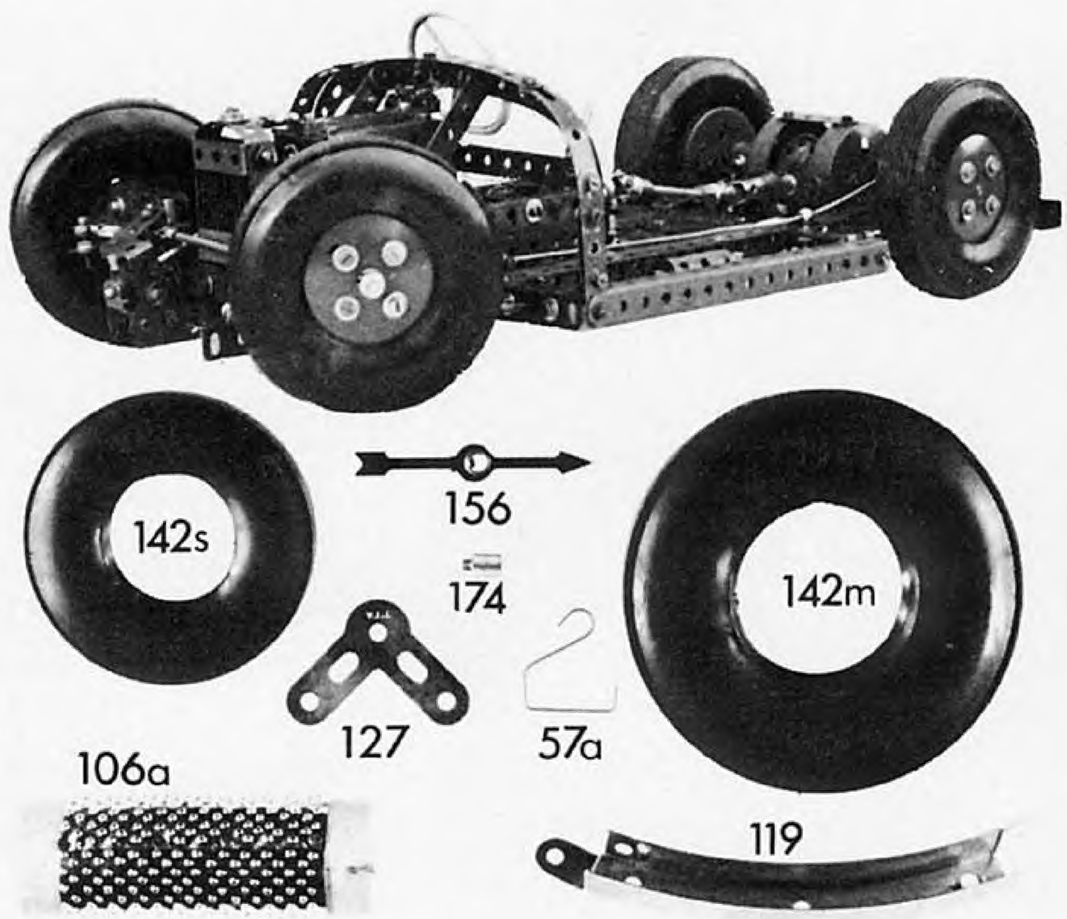
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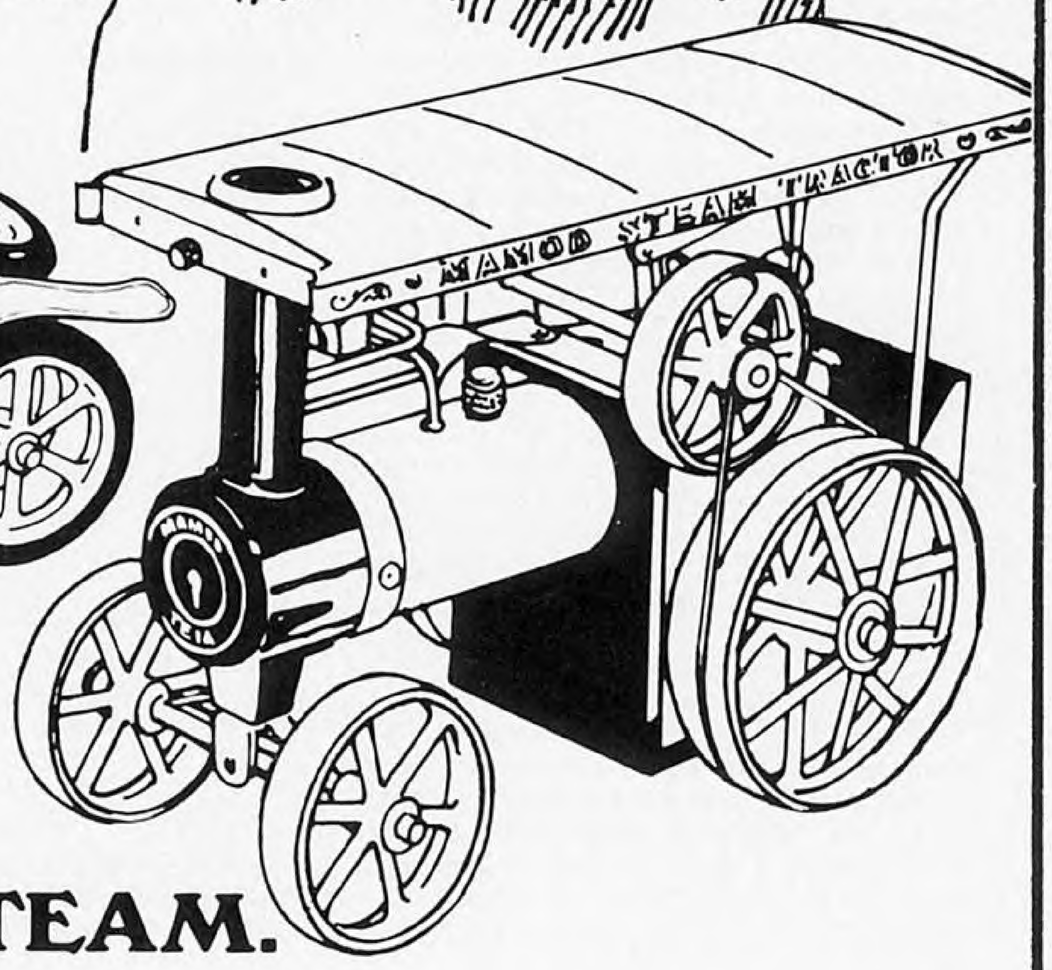
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RATES charged for advertisements in this section are as follows: Private – 2p per word; Trade – 3p per word. Please send advertisements, with remittance to : Meccano Magazine, Classified Advertisements, 18 Reading Road, Henley-on-Thames, Oxfordshire, RG9 1AG, England. Advertisment space is available elsewhere in the magazine – full details are available on request from the above address.

FOR SALE Comprehensive Meccano System. Comprising — No 10 set, No 2 Clock Kit plus many additional parts ie electrical, loom etc, all contained in 4 drawer caninet. Two electric and two clockwork Motors plus mains transformer, battery box. Over 100 Meccano Magazines 1959-1977. Also Meccano Engineers, GMM publications including Supermodel Leaflets, Journals and Meccanoman's Guide complete. Instruction Manuals, books etc. All parts in good condition purchased within the last four years. Best offer of +£175 secures. D Bolton, 26 Ynyswen Road, Treorchy, Mid-Glamorgan, Wales. Tel: Pontypridd 402627 (1pm — 2pm)

FOR SALE Enthusiast disposing of new and second hand Meccano surplus to requirements. S A E for details to B N Love, 61 Southam Road, Hall Green, Birmingham, B28 8DQ, England.

FOR SALE Hornby Train Set of 1930 period comprising: (2) M1/2 Locos + tenders, goods and passenger rolling stock, oval track with points. J Brownlie, 71 Kingston Road, Kilsyth, Glasgow G65 DJG Scotland.

FOR SALE 14 MMs (1929-33). Some obsolete parts, and replicas of 120A and 306 (6BA terminals). Contact Mr Toon, 24 Park Street, Luton, Bedfordshire, England.

FOR SALE As new No 10 Set in partitioned box £75. Spare parts ½ price, some less. 167, E020, E120 as new. What offers? MMs — S A E Taylor, 25 Armitage Road, Birkby, Huddersfield, England.

WANTED MMs for 1926 and 1927, complete, loose or bound, good price paid. J Brownlie, 71 Kingston Road, Kilsythe, Glasgow G65 DJG Scotland.

WANTED Pre-war 'Frog' ready-made flying models, parts, lapel badges, catalogues. MMs for November and December 1932. Roberts, 28 Mumbles Road, Swansea, Wales. Tel: 0792-24146.

WANTED MMQ April, October, 1973; Elektrikit Manual. Evans, 2 Polmor Road, Crowlas, Penzance, Cornwall, TR20 8DW, England.

WANTED Pre-1962 Meccano Manuals, Literature including catalogues, price lists etc, excluding MMs except Jan, Oct, Nov 1925 and Jan 1926 complete with covers; Pre-war French; and Post-war French, small format, Nos 1,3,4,5,9,15,17,21. Also required pre-1926 nickel, brass and pre-war blue, gold, light red parts, motors, sets in good condition. Please send details. If preferred will swop any item for MMs. Most issues 1926 to 1953 available plus some later, also pre-war bound volumes, and some post-war French. Knowles, 7 Potters Way, Laverstock, Salisbury, Wiltshire, England. Tel: (0722) 3887.

WANTED MMs 1947: Jan, Dec. 1948: Jan, Apr, Jun, Jul, Nov, Dec. 1968: May, Jul, Aug, 1969: Apr, May, Jul, Aug, Sept, Oct, Dec. 1970: Mar, Apr, May, Dec. P A Crozier-Cole, Hillside House, Farley, Salisbury, Wilts. SP5 1AB, England.

WANTED US Meccano E3 (1927) reversing 110-volt motor; New Haven (1930-32) E2B 4-16 volt motor with gearbox side plates, P66 disc clutch power unit (Erector P65). Purchase or temporary loan. State terms. C. Suttle, 6062 Cerulean Avenue, Garden Grove, California 92645 USA

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Meccano Magazine, 18 Reading Road, Henley-on-Thames, Oxon, RG9 1AG.

WE NEED YOU

The Editor of Meccano Magazine is always on the look-out for material for publication.

If you have anything to contribute, be it a full-scale series of articles, a 'one-off', or just a small tip to pass on to your fellow modellers, he would be very pleased to hear from you.

Whilst material in any form is welcomed, we are often asked how we prefer material to be presented. The ideal is a typed manuscript, double line-spaced on one side of the page/s only. Accompanying photographs should be black-and-white and printed on whole plate (165x215mm) or larger glossy untextured paper. The very minimum requirements for a colour illustration are a high-quality transparency (preferably of larger format than 35mm).

The above represents the ideal, but we stress that any material in any form will be considered, so you don't have to rush out and buy a typewriter!

The Editor looks forward to hearing from you and considering your contribution on Meccano, Hornby, Dinky, or anything else!

Meccano Magazine 18 Reading Road, Henley-on-Thames, Oxon, RG9 1AG.

Worth Framing!

The centre-page *COLOUR GALLERY* spreads from the new *Meccano Magazines* are available as separate prints suitable for framing. A limited edition of 2000 of each have been printed and are available through M W Models (for address, see p50) at 30p each plus postage.

Trade enquiries welcomed.

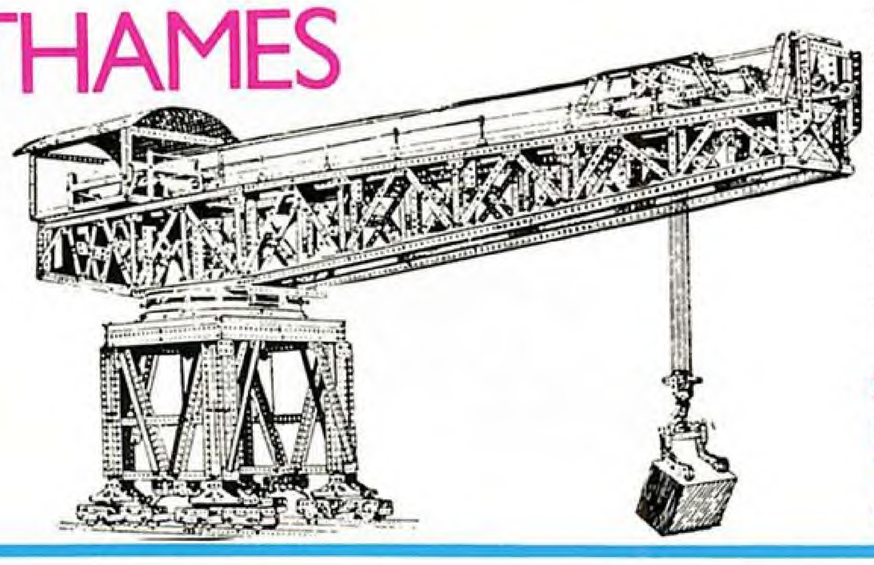
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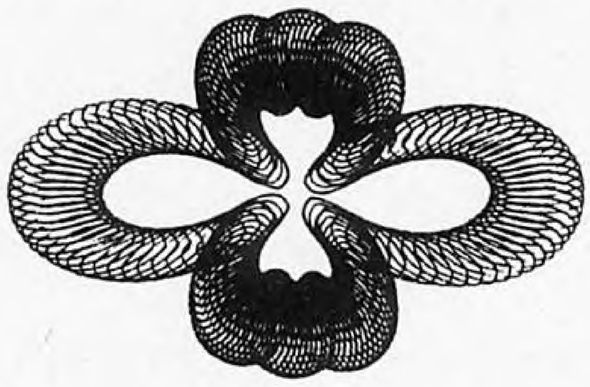
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The earlier Special Models Nº 1 – 10 [see *MMQ* 1976 July] still available. Furthermore old Meccano, Marklin, etc, literature.

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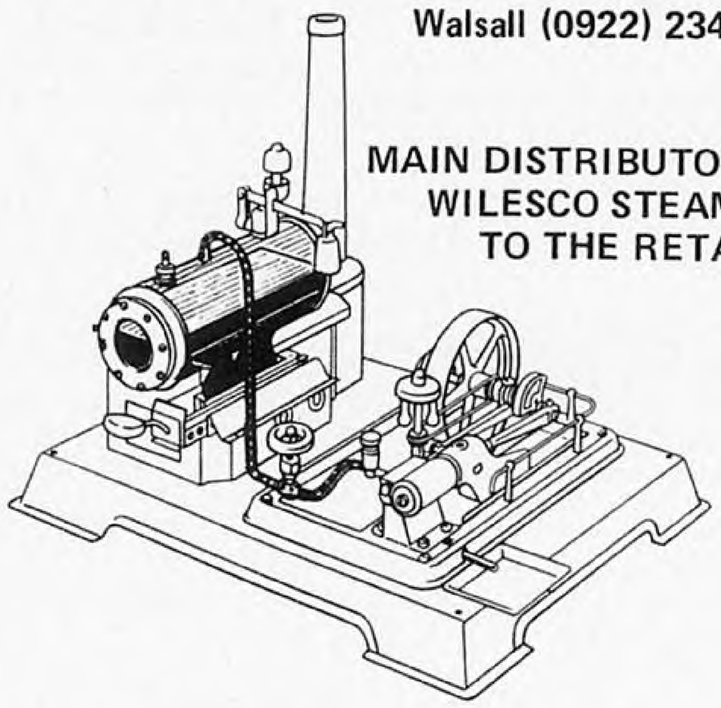
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The Meccano Magazine



As you will read in Mike Nicholls' Editorial in this issue, Delta Graphics are unfortunately unable to continue publication of the Meccano Magazine. Meccano Limited has therefore agreed to resume responsibility for the M.M. and it is our firm intention to ensure the continuance of a good-quality quarterly magazine devoted primarily to the Meccano hobby. To enable us to continue publishing the Magazine, however, your help and support are required in three broad directions : patience, material involvement and subscriptions.

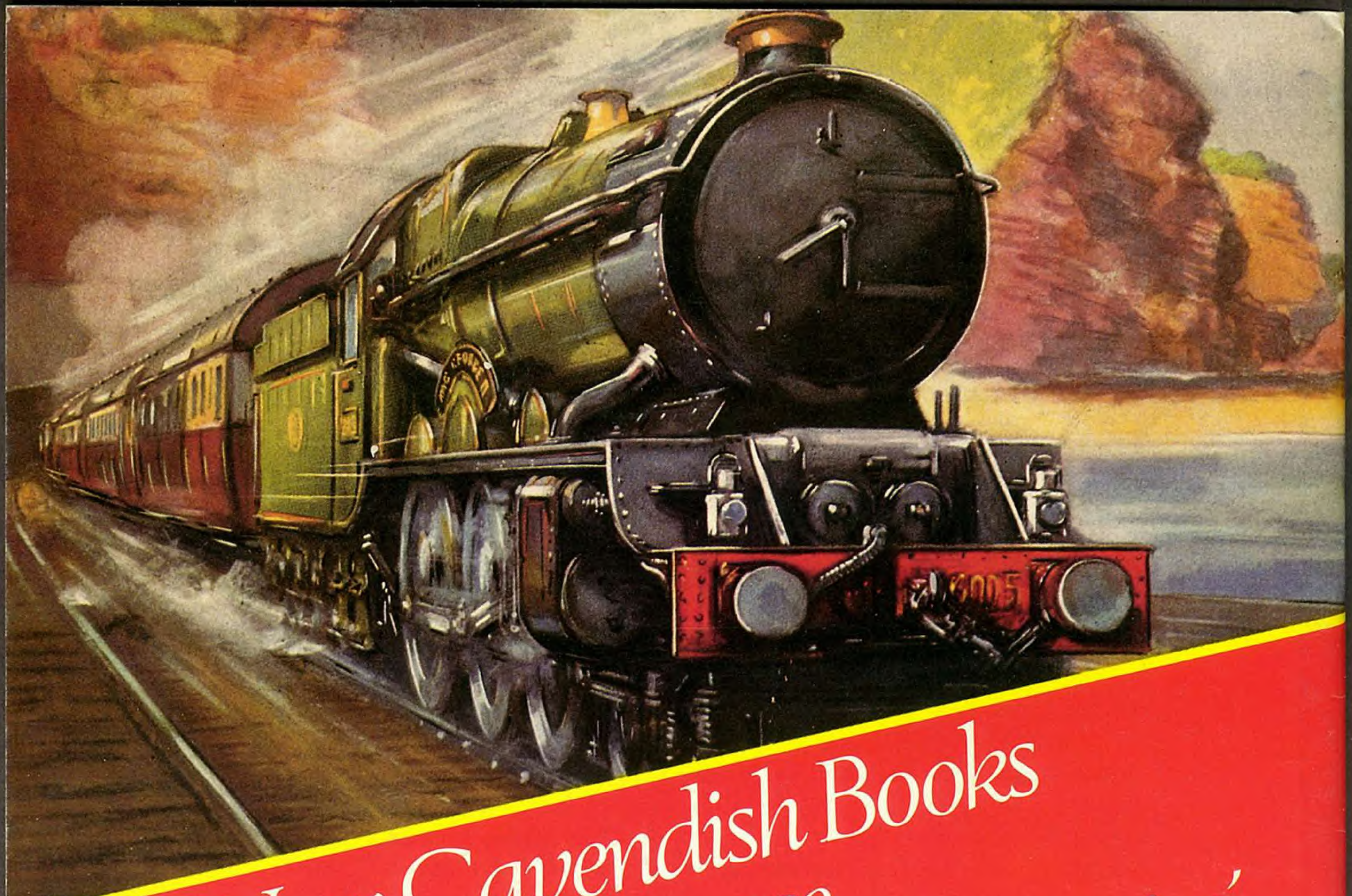
Your patience — already overstretched by too long without a magazine — is required to understand any problems which may occur during the organisational change-over. Your patience is equally required to accept this "three-in-one" issue, but don't worry, Meccano will extend all current subscriptions by two issues so that all subscribers receive the correct number of magazines for their subscription payment.

Your material involvement is required literally in the shape of material for possible publication in the Magazine. Meccano Magazine is your own magazine and the more items of Meccano interest you can provide, the better will be the magazine.

Your subscriptions are required (when they are due) to help pay for the Magazine and ensure its future success. The Magazine **must** succeed. With 1977 marking the 61st year of publication, it cannot now be allowed to die. But it will take concerted effort, and the situation will not be helped by the fact that the Magazine will have to be printed, not by Meccano Limited, but by an outside company — at great expense. Coupled with all the other high expenses involved in publishing a quality magazine today, this means that your basic subscription support will cost you more than ever before. Remember, though, that we are determined to see that you will continue to have a magazine for your hobby.

Chris Jelley
Editor-Elect

MOST IMPORTANT: PLEASE ENSURE THAT, WITH IMMEDIATE EFFECT, ALL NEW AND RENEWED SUBSCRIPTIONS, PLUS EDITORIAL MATERIAL AND GENERAL CORRESPONDENCE, IS ADDRESSED TO: MECCANO MAGAZINE, BINNS ROAD, LIVERPOOL, L13 1DA.



New Cavendish Books Announce 'The Hornby Companion Series'

The Hornby Companion Series will comprise a unique library of seven books dealing with the product history of the legendary Meccano Company founded by Frank Hornby in 1908. The series will be published over the next few years, each volume conforming to an overall size but varying in page and colour content. In an endeavour to make this series as definitive as possible, each volume will be written and compiled by acknowledged experts. The consultant Editor of the series is Mike Nicholls, currently editor of Meccano Magazine. The publishers have access to the finest archival material on the subject, and all this coupled with the standard of quality that has become synonymous with New Cavendish Books, will ensure that these volumes will offer enormous value and pleasure to the readers. It is hoped that over the years they may become as cherished as the products they illustrate.

The Hornby Companion Series: VOLUME 1
The Products of Binns Road – A General Survey – Peter Randall – ISBN 0 904568 06 7. 224 pp, 102 pages full colour, 209 x 292 mm landscape. To be published Spring 1977, at £12.50.

This will form the master Volume to the series and outlines virtually all the products issuing from the various Meccano factories. It includes, for the first time ever, full colour reproductions of the extremely rare Meccano Book of Products – 1934/35, together with a similar reproduction of the Hornby Book of Trains for 1938/39. A full colour extract from the 1939/40 book of trains is also included, dealing with the introduction of Hornby Dublo. In addition to an excellent text, touching on the development of virtually all Meccano's products, the book is profusely illustrated with over 170 black and white reproductions taken mainly from the original Company's literature. The book also includes an invaluable diary of commercial and industrial events.

VOLUME 2: The Meccano Super Models – Geoff Wright. ISBN 0 904568 07 5. Autumn 1977.

VOLUME 3: The History of Hornby Dublo 1938-1964 – Michael Foster.

VOLUME 4: Dinky Toys and Modelled Miniatures – Mike and Sue Richardson.

VOLUME 5: The Hornby 0 Gauge System – Bruce Baxter.

VOLUME 6: A Complete Guide to The Meccano System and The Special Constructional Sets – Jim Gamble.

VOLUME 7: The Hornby Companion – A Digest of Meccano's Advertising and Literature – Mike Nicholls.

This series will be available from most good booksellers.

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